

# **PART I**

**THE FOLLOWING PAGES ARE TO BE**

**INSERTED INTO PART I**

**OF THE**

**CHESTERFIELD COUNTY WATER AND SEWER  
SPECIFICATIONS AND PROCEDURES**

**PART I**

**DESIGN STANDARDS AND PROCEDURES  
FOR  
WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS  
CHESTERFIELD COUNTY, VIRGINIA**

**INSTRUCTIONS for viewing and/or printing PART I of the Water and Sewer Specifications:**

To view PART I, click on the blue highlighted area above. After pulling up PART I, click on “BOOKMARKS” in the left hand margin of the document to locate various sections within the document. To print the document in its entirety, click FILE – PRINT. (When printing the document, please remember to print this table of contents and include it in your book.)

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Valves shall be located at not over 1,000 foot intervals and at all changes in pipe diameter. Valves shall also be provided at all pipe line intersections so as to provide shut off for repairs of limited sections without interruption of service to large areas and to facilitate testing. A minimum of two valves shall be provided at tees, three valves at crosses and shall be located as close to the fitting as practical. All Valves are to be restrained to fittings by approved method.

When connecting to an existing water main, installing a tee as opposed to a tapping sleeve and valve is especially desirable when there are long distances between main line valves (greater than 1,000 feet) or even if the distance is less than 1,000 feet where it would be an advantage to add a main line valve for better system control. Therefore, it is important that each project be carefully evaluated by the developer's engineer with the Department of Public Utilities' assistance to determine if a main line valve is needed and/or cutting in a tee is practical, taking into consideration how many residences, businesses, hospitals, etc. may be without water.

Water mains shall be provided with air release valves and blowoffs at suitable locations to allow testing, chlorination and draining of the line. Fire hydrants, blowoffs or flushing hydrants shall be installed at dead-end mains.

### **STRUCTURAL DESIGN**

Structural requirements must be considered in the design of all water mains and appurtenances. This is a matter of detail design and is not subject to simple generalization. The following criteria should be considered by the design engineer:

1. Special Structures - Structures shall be built as shown in the standard details, however, structures other than those shown in the standard details shall be considered special structures and shall be designed and detailed by the design engineer and submitted for review and approval to the Department of Public Utilities prior to plan submittal or brought to the Department's attention at the time of plan submittal.
2. Pipe Foundation - In all cases the proper strength water pipe shall be specified for the proposed depth, width of trench and bedding condition. Soil condition should be considered with samples being obtained where necessary to verify pipe selection and foundation design.

To determine maximum daily demands and peak hourly demands the following multipliers shall be used:

Maximum Daily Demand	=	1.8 times Average Daily Demand
Peak Hourly Demand	=	2.36 times Average Daily Demand

Fire flow requirements for non-residential areas shall be in accordance with the National Fire Protection Association Handbook (latest revisions) and the applicable sections of BOCA, and shall be coordinated with the Fire Administration Department. That portion of the Fire Sprinkler Systems to be maintained by the Department of Public Utilities shall be designed in accordance with the requirements as set forth in Appendix 8.

Minimum pipe size shall be 8", except that terminal water lines will be six (6) inches in diameter unless a larger diameter line is needed to meet the peak domestic demand and/or fire flow requirements. Dead-ends shall be eliminated by looping when feasible.

Services and meters shall be sized and locations designed in accordance with the Standard Details. Minimum service size shall be 3/4" pipe with 5/8" meter. Services shall be designed and reflected on the plans for both residential and commercial developments. A 1" County service line will be installed when the residential water service from the main to the meter is 60' or greater; or the peak house pressure at the main is 40 psi or less. When the peak hour pressure at the probable house site is less than 40 psi and depending on such variables as: house location, number of fixtures, number of finished floors, etc., a note must be added to the plans: "The builder may consider installing a larger plumbing line from the meter to the house and/or installing a booster pump to obtain a desired pressure".

Pressure reducing valves shall be installed on the customer side of the meter by builder or property owner, to be operated and maintained by the customer, when the service connection system pressure will be greater than 80 psi.

Blowoffs shall be provided at low points on mains 16-inches and larger. For 12-inch mains, blowoffs shall be provided at creek crossings.

Engineer should use the following guidelines, in regard to location of flush points, air release valves, blowoffs, etc. during the design of public water systems:

1. Access to flush points by contractors and especially to the County Operations and Maintenance Section is very important. Flush points serve no purpose if access to the flush points can not be obtained.
2. Engineer needs to make sure that appropriate notes i.e., flow (gpm) expected to be dispersed at points of flushing; etc. are put on the plans.

## **PART II**

**THE FOLLOWING PAGES ARE TO BE**

**INSERTED INTO PART II**

**OF THE**

**CHESTERFIELD COUNTY WATER AND SEWER  
SPECIFICATIONS AND PROCEDURES**

**PART II**  
**STANDARD DETAILS**  
**CHESTERFIELD COUNTY, VIRGINIA**

**INDEX OF DRAWINGS**

**INSTRUCTIONS for viewing and/or printing the Standards Details:**

To view PART II, click on the blue highlighted area above. After pulling up PART II, click on “**BOOKMARKS**” in the left hand margin of the document to locate various details. To print the document in its entirety, click FILE – PRINT. (When printing the document, please remember to print this table of contents and include it in your book.)

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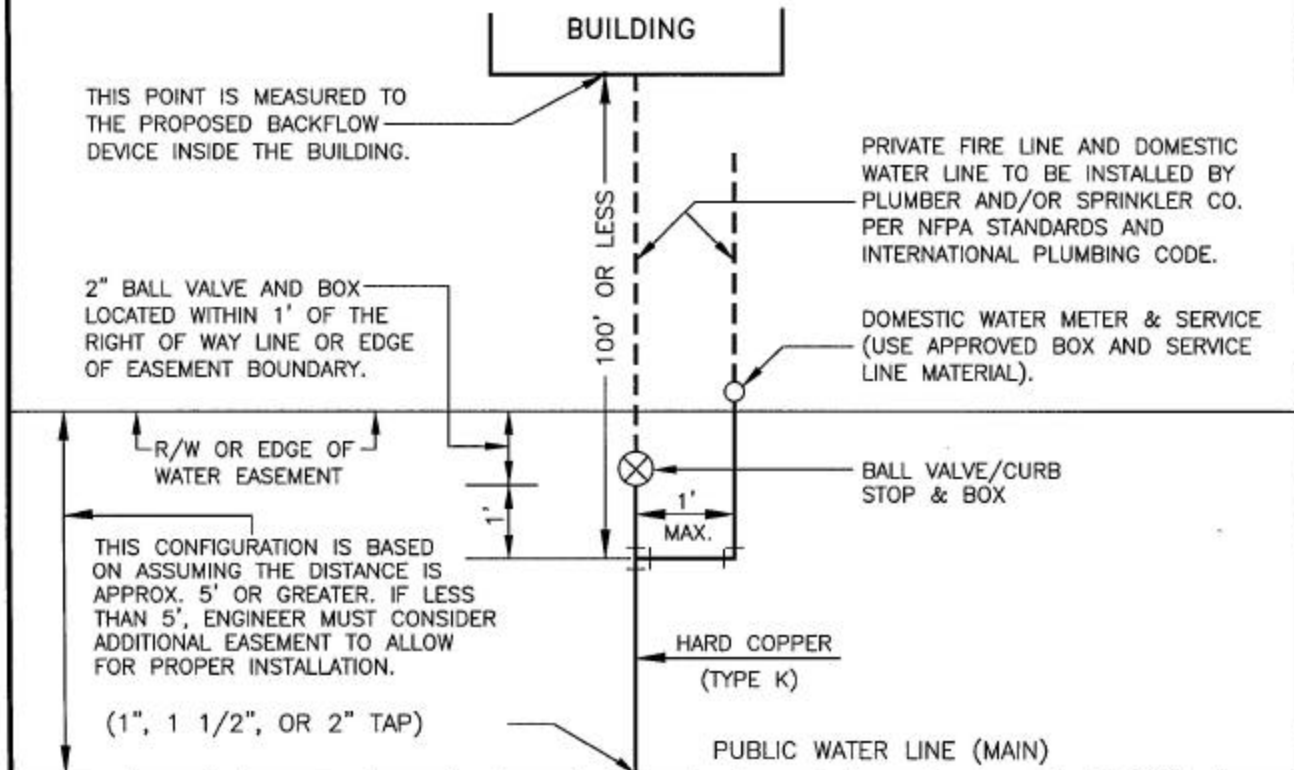
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# DEPARTMENT OF PUBLIC UTILITIES



## NOTES:

- WHERE THE PUBLIC MAIN EXISTS, ALL WORK SHALL BE PERFORMED BY THE COUNTY UTILITIES DEPARTMENT UPON MAKING PROPER APPLICATION FOR SERVICE.
- ON ALL NEW WATER MAINS WHERE FIRE LINERS ARE PROPOSED, DEVELOPER SHALL HAVE HIS UTILITY CONTRACTOR (ACCEPTABLE TO THE UTILITIES DEPARTMENT) INSTALL, UP TO THE BALL VALVE AND WATER METER BOX, THE NECESSARY FIRE/DOMESTIC SERVICE COMBINATION, PLUS ANY OTHER REQUIRED SERVICES I.E., IRRIGATION, ETC.
- WHERE FIRE LINE TO BUILDING IS 100' OR LESS FROM THE PUBLIC MAIN, THE FIRE LINE SYSTEM MAY BE INSTALLED ACCORDING TO THIS DETAIL. IF THE OWNER CHOOSES TO HAVE THE DOUBLE-CHECK ASSEMBLY INSTALLED IN A VAULT OUTSIDE OF BUILDING OR IF THE FIRE LINE EXCEEDS 100', FIR-2 DETAIL MUST BE USED.
- ALL FIRE LINES MUST HAVE AT LEAST 3.5 FEET OF GROUND COVER.
- USE BALL VALVES AS MANUFACTURED BY FORD, McDONALD, OR APPROVED EQUAL.
- WHERE THIS DETAIL FOR A 2" COMBINED FIRE/DOMESTIC WATER LINE DOES NOT PROVIDE ADEQUATE SERVICE BECAUSE OF THE METER SIZE AND/OR AVAILABLE WATER PRESSURE, THE FIR-1A MAY BE USED.
- CONNECTIONS FOR 1 1/2" AND 2" FIRE LINE SERVICES WILL BE SWEAT 95/5 (LEADLESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM.

## (100 FEET OR LESS)

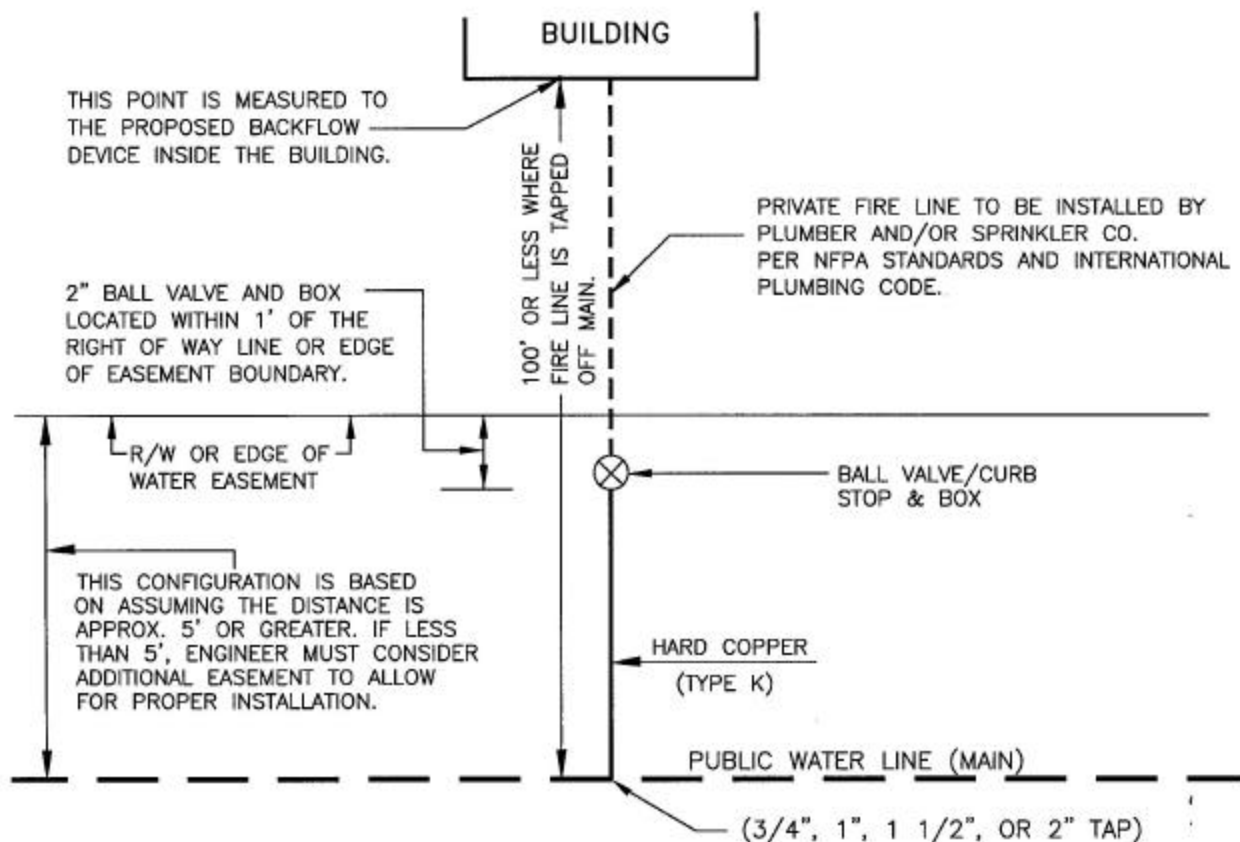
DATE:  
JAN. 1996

REVISIONS:  
June 2004

TYPICAL PLAN VIEW OF PROPOSED 2"  
OR SMALLER FIRE LINE SYSTEMS  
FOR NON SINGLE FAMILY RESIDENTIAL  
(WITH DOMESTIC SERVICE LINE)

DRWG. NO.  
FIR-1  
(1 of 2)

# DEPARTMENT OF PUBLIC UTILITIES



## NOTES:

- WHERE THE PUBLIC MAIN EXISTS, ALL WORK SHALL BE PERFORMED BY THE COUNTY UTILITIES DEPARTMENT UPON MAKING PROPER APPLICATION FOR SERVICE.
- ON ALL NEW WATER MAINS WHERE FIRE LINES ARE PROPOSED, DEVELOPER SHALL HAVE HIS UTILITY CONTRACTOR (ACCEPTABLE TO THE UTILITIES DEPARTMENT) INSTALL A SINGLE FIRE LINE UP TO THE BALL VALVE AND WATER METER BOX.
- WHERE FIRE LINE TO BUILDING IS 100' OR LESS FROM THE PUBLIC MAIN, THE FIRE LINE SYSTEM MAY BE INSTALLED ACCORDING TO THIS DETAIL. IF THE OWNER CHOOSES TO HAVE THE DOUBLE-CHECK ASSEMBLY INSTALLED IN A VAULT OUTSIDE OF BUILDING OR IF THE FIRE LINE EXCEEDS 100', FIR-2 DETAIL MUST BE USED.
- ALL FIRE LINES MUST HAVE AT LEAST 3.5 FEET OF GROUND COVER.
- USE BALL VALVES AS MANUFACTURED BY FORD, McDONALD, OR APPROVED EQUAL.
- CONNECTIONS FOR 1 1/2" AND 2" FIRE LINE SERVICES WILL BE SWEAT 95/5 (LEADLESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM.

**(100 FEET OR LESS)**

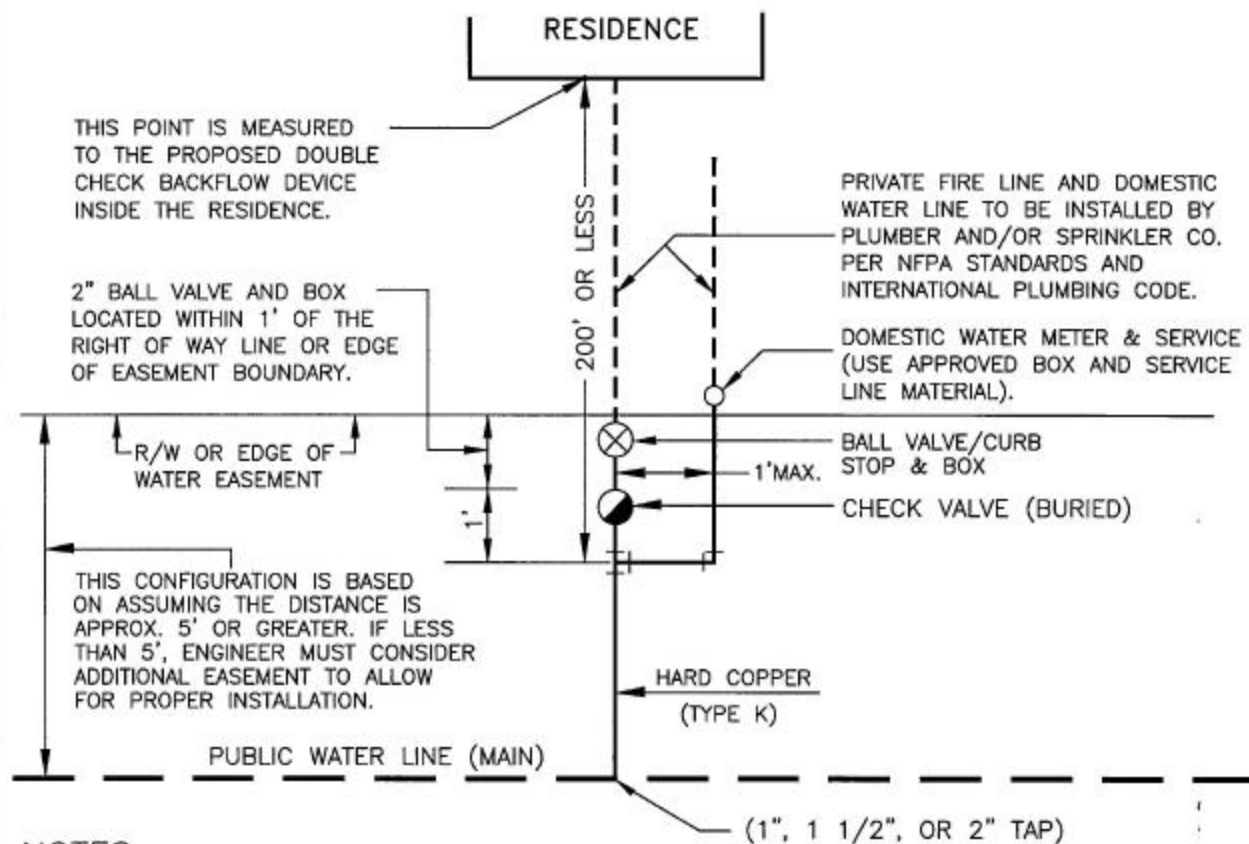
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JAN. 2003

REVISIONS  
June 2004

TYPICAL PLAN VIEW OF PROPOSED 2"  
OR SMALLER FIRE LINE SYSTEMS  
FOR NON SINGLE FAMILY RESIDENTIAL  
(WITHOUT DOMESTIC SERVICE LINE)

DRWG. NO.  
FIR-1  
(2 of 2)

# DEPARTMENT OF PUBLIC UTILITIES



## NOTES:

- ON ALL NEW WATER MAINS WHERE FIRE LINES ARE PROPOSED, DEVELOPER SHALL HAVE (HIS UTILITY CONTRACTOR ACCEPTABLE TO THE UTILITIES DEPARTMENT) INSTALL, UP TO WATER METER THE BALL VALVE AND BOX, THE NECESSARY FIRE/DOMESTIC SERVICE COMBINATION, PLUS ANY OTHER REQUIRED SERVICES I.E., IRRIGATION, ETC.
- WHERE FIRE LINE TO BUILDING IS 200' OR LESS FROM THE PUBLIC MAIN, THE FIRE LINE SYSTEM MAY BE INSTALLED ACCORDING TO THIS DETAIL. IF THE OWNER CHOOSES TO HAVE THE DOUBLE-CHECK ASSEMBLY INSTALLED IN A VAULT OUTSIDE OF BUILDING OR IF THE FIRE LINE EXCEEDS 200', FIR-2 DETAIL MUST BE USED.
- ALL FIRE LINES MUST HAVE AT LEAST 3.5 FEET OF GROUND COVER.
- USE BALL VALVES AS MANUFACTURED BY FORD, McDONALD, OR APPROVED EQUAL.
- USE CHECK VALVES AS MANUFACTURED BY W.O.G. JENKINS; GRINNELL; OR APPROVED EQUAL.
- CONNECTIONS FOR 1 1/2" AND 2" FIRE LINE SERVICES WILL BE SWEAT 95/5 (LEAD LESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM.

(200 FEET OR LESS)

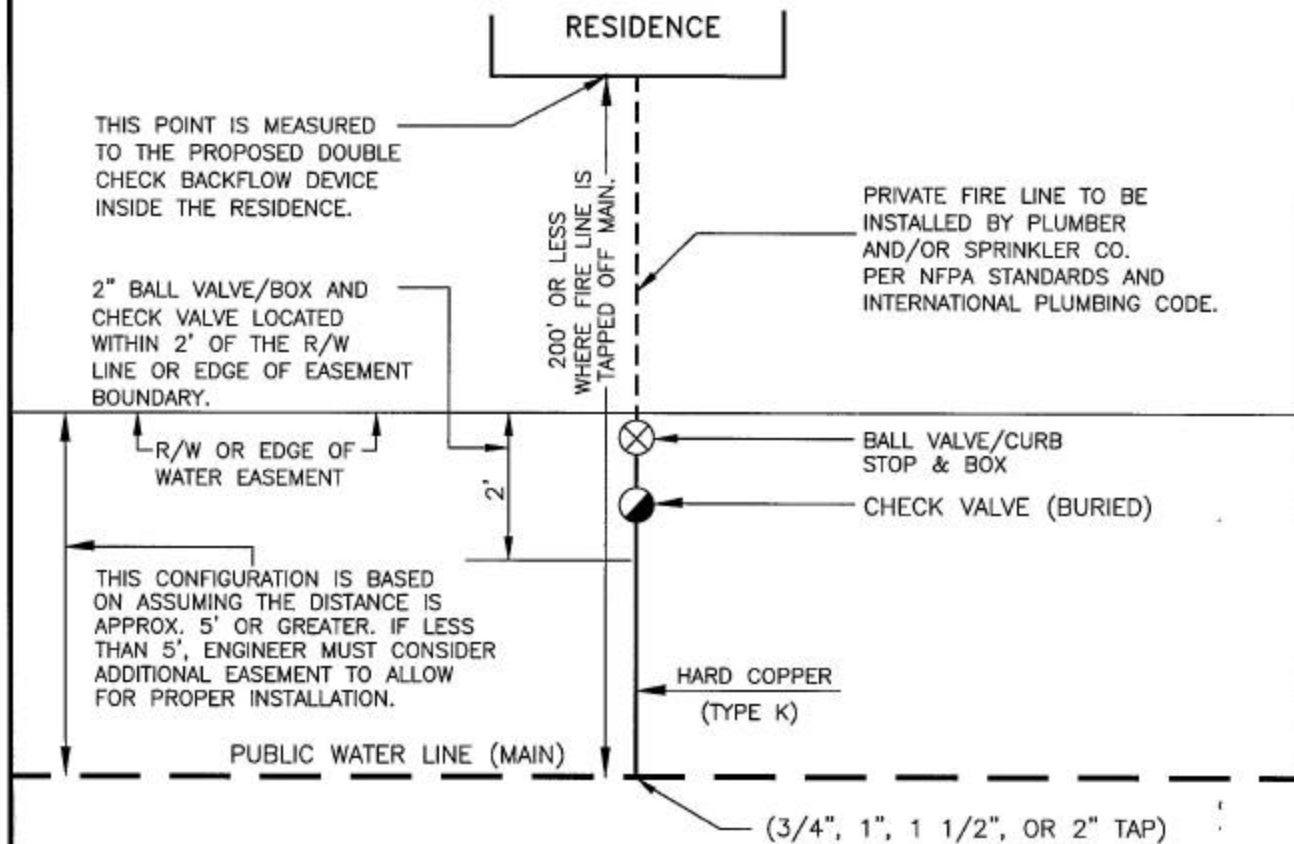
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DEC. 2003

REVISIONS  
June 2004

TYPICAL PLAN VIEW OF PROPOSED 2"  
OR SMALLER SINGLE FAMILY RESIDENTIAL  
FIRE LINE SYSTEMS (WITH DOMESTIC SERVICE LINE)

DRWG. NO.  
FIR-1B  
NFPA 13D  
(1 of 2)

# DEPARTMENT OF PUBLIC UTILITIES



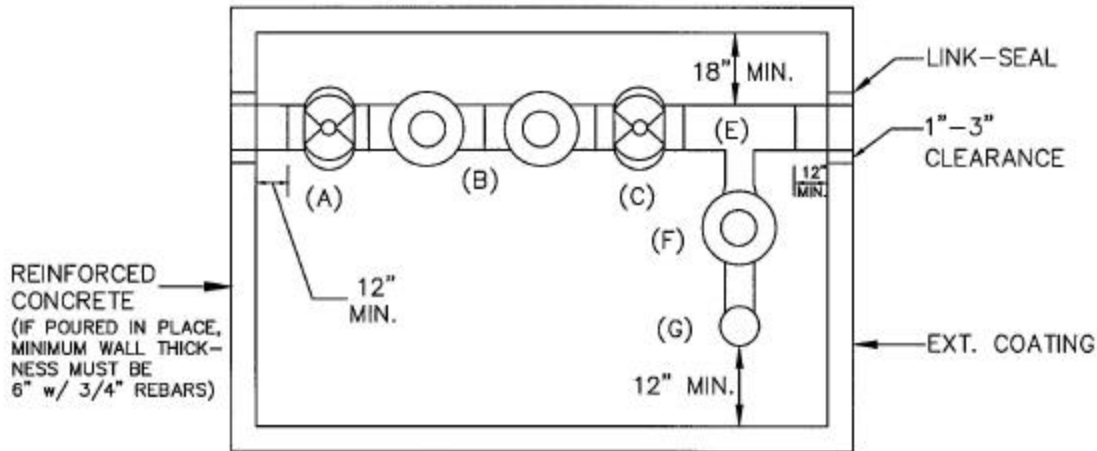
## NOTES:

- ON ALL NEW WATER MAINS WHERE FIRE LINES ARE PROPOSED, DEVELOPER SHALL HAVE HIS UTILITY CONTRACTOR (ACCEPTABLE TO THE UTILITIES DEPARTMENT) INSTALL A SINGLE FIRE LINE UP TO THE BALL VALVE AND WATER METER BOX.
- WHERE FIRE LINE TO BUILDING IS 200' OR LESS FROM THE PUBLIC MAIN, THE FIRE LINE SYSTEM MAY BE INSTALLED ACCORDING TO THIS DETAIL IF THE OWNER CHOOSES TO HAVE THE DOUBLE-CHECK ASSEMBLY INSTALLED IN A VAULT OUTSIDE OF BUILDING, OR IF THE FIRE LINE EXCEEDS 200', FIR-2 DETAIL MUST BE USED.
- ALL FIRE LINES MUST HAVE AT LEAST 3.5 FEET OF GROUND COVER.
- USE BALL VALVES AS MANUFACTURED BY FORD, McDONALD, OR APPROVED EQUAL.
- USE CHECK VALVES AS MANUFACTURED BY W.O.G. JENKINS; GRINNELL; OR APPROVED EQUAL.
- CONNECTIONS FOR 1 1/2" AND 2" FIRE LINE SERVICES WILL BE SWEAT 95/5 (LEAD LESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM.

(200 FEET OR LESS)

DATE DEC. 2003	TYPICAL PLAN VIEW OF PROPOSED 2" OR SMALLER SINGLE FAMILY RESIDENTIAL FIRE LINE SYSTEMS (WITHOUT DOMESTIC SERVICE LINE)	DRWG. NO. FIR-1B NFPA 13D (2of2)
REVISIONS June 2004		

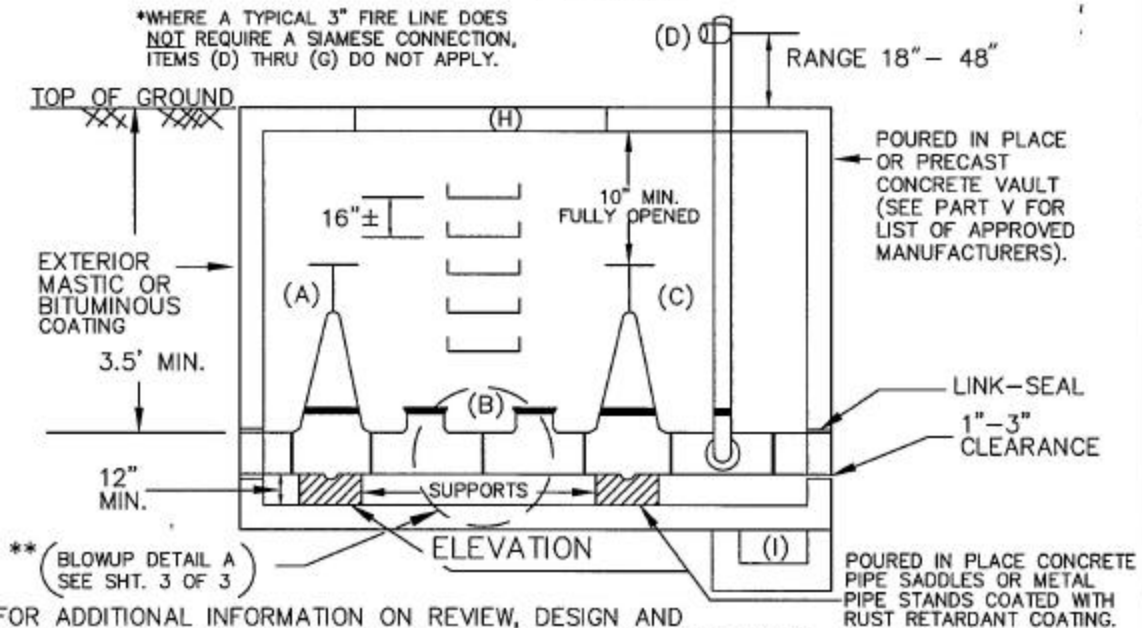
# CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES



## PLAN

- (A) OUTSIDE STEM AND YOKE GATE VALVE
- (B) DOUBLE CHECK VALVE ASSEMBLY
- (C) OUTSIDE STEM AND YOKE GATE VALVE
- \* (D) 2 1/2" THREADED N.S.T. SIAMESE CONNECTION FOR FIRE DEPARTMENT W/AUTOMATIC BALL DRIP
- \* (E) REQUIRED (MAIN LINE SIZE) " X 4"
- \* (F) 4" CHECK VALVE
- \* (G) 4" - 90° BEND
- (H) JD-2AL 4' X 4' BILCO DOOR, OR AS MANUFACTURED BY VA. SPRINKLER COMPANY, OR APPROVED EQUAL.
- (I) SUMP WHERE WATER TABLE IS A PROBLEM OR GRAVITY DRAIN WHERE WATER TABLE IS NOT A PROBLEM.
- \*\* (J) BYPASS LINE W/DETECTOR METER & BACKFLOW PREVENTER

\*WHERE A TYPICAL 3" FIRE LINE DOES NOT REQUIRE A SIAMESE CONNECTION, ITEMS (D) THRU (G) DO NOT APPLY.



FOR ADDITIONAL INFORMATION ON REVIEW, DESIGN AND CONSTRUCTION, SEE PART IV, & PART V OF THE SPECIFICATIONS.

DATE:  
JAN. 1996

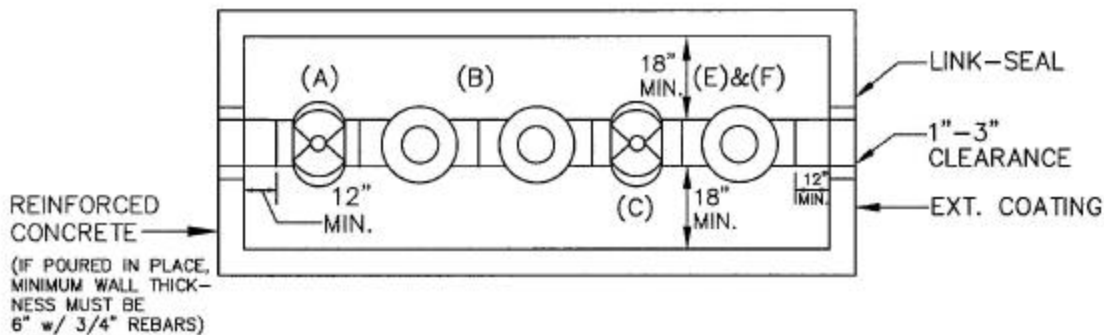
REVISIONS:  
JUNE 2004

**3" OR LARGER  
DOUBLE CHECK ASSEMBLY AND VAULT  
(Alternate 1)**

DRWG. NO.  
FIR-3  
SHT. 1 OF 3

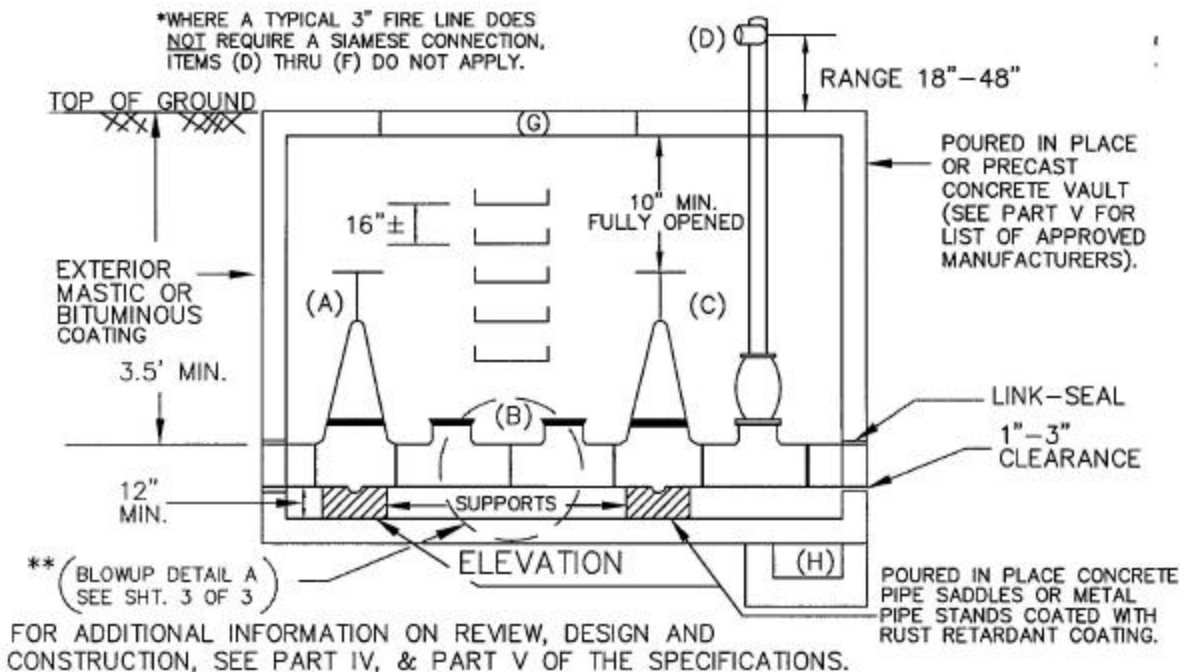


# CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES



## PLAN

- (A) OUTSIDE STEM AND YOKE GATE VALVE
- (B) DOUBLE CHECK VALVE ASSEMBLY
- (C) OUTSIDE STEM AND YOKE GATE VALVE
- \* (D) 2 1/2" THREADED N.S.T. SIAMESE CONNECTION FOR FIRE DEPARTMENT W/AUTOMATIC BALL DRIP
- \* (E) REQUIRED (MAIN LINE SIZE) " X 4"
- \* (F) 4" FIRE PROTECTION CHECK VALVE - Fig. 590F AS MANUFACTURED BY GROOVED SPRINKLER CO. OR APPROVED EQUAL FOR USE IN THIS SPECIFIC APPLICATION.
- (G) JD-2AL 4' X 4' BILCO DOOR, OR AS MANUFACTURED BY VA. SPRINKLER COMPANY, OR APPROVED EQUAL.
- (H) SUMP WHERE WATER TABLE IS A PROBLEM OR GRAVITY DRAIN WHERE WATER TABLE IS NOT A PROBLEM.
- \*\* (I) BYPASS LINE W/DETECTOR METER & BACKFLOW PREVENTER



DATE:  
MARCH 2002

REVISIONS:  
JUNE 2004

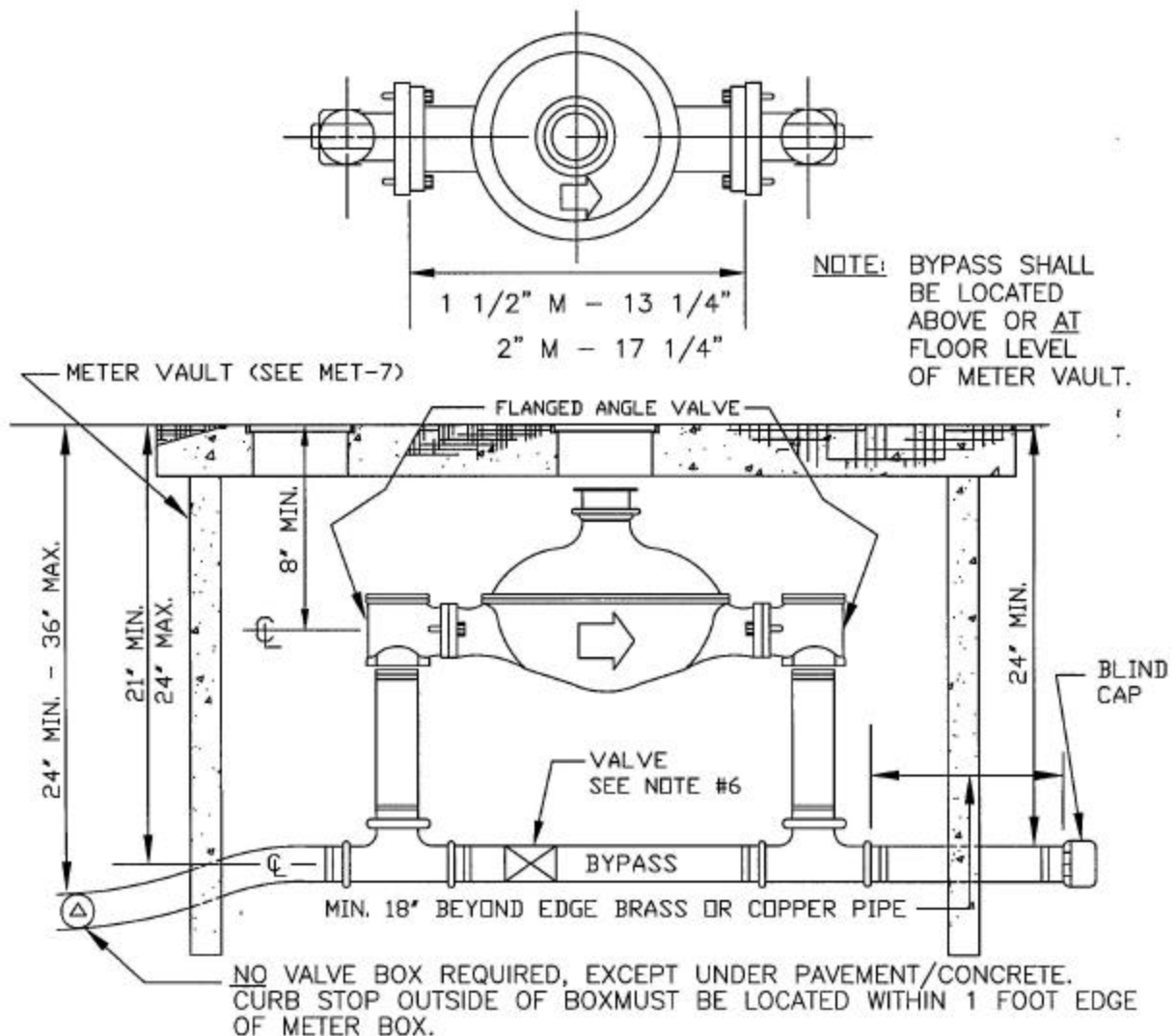
3" OR LARGER  
DOUBLE CHECK ASSEMBLY AND VAULT  
(Alternate 2)

DRWG. NO.  
**FIR-3**  
SHT. 2 OF 3

# CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES

## NOTES:

1. SADDLES SHALL BE USED FOR ALL 1 1/2" AND 2" TAPS.
2. WATER SERVICE LATERALS FOR 1 1/2" AND 2" SERVICES WILL BE TYPE-K HARD COPPER. CONNECTIONS FOR 1 1/2" AND 2" SERVICES WILL BE SWEAT 95/5 (LEADLESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM. ALL CONNECTIONS AT CORPORATION STOPS WILL BE APPROVED COMPRESSION FITTINGS.
3. TAPS SHOULD BE MADE AT THE SPRING LINE OF THE MAIN LINE.
4. FOR DETAIL OF VAULT, SEE MET-7.
5. YOKE MUST BE INSTALLED WITH A METER SPACER THAT WILL BE FURNISHED TO THE CONTRACTOR BY THE UTILITIES DEPARTMENT INSPECTOR. THE SPACER WILL BE REMOVED BY THE UTILITIES DEPARTMENT WHEN THE METER IS SET.
6. BY-PASS VALVE SHALL NOT BE ALLOWED FOR IRRIGATION OR RESIDENTIAL SERVICES.



DATE:

JAN. 1996

REVISIONS:

JUNE 2004

1 1/2" OR 2" DISC METER SETTINGS

DRWG. NO.

MET-6

CHESTERFIELD COUNTY  
DEPARTMENT OF PUBLIC UTILITIES

RESERVED  
FOR  
FUTURE  
USE

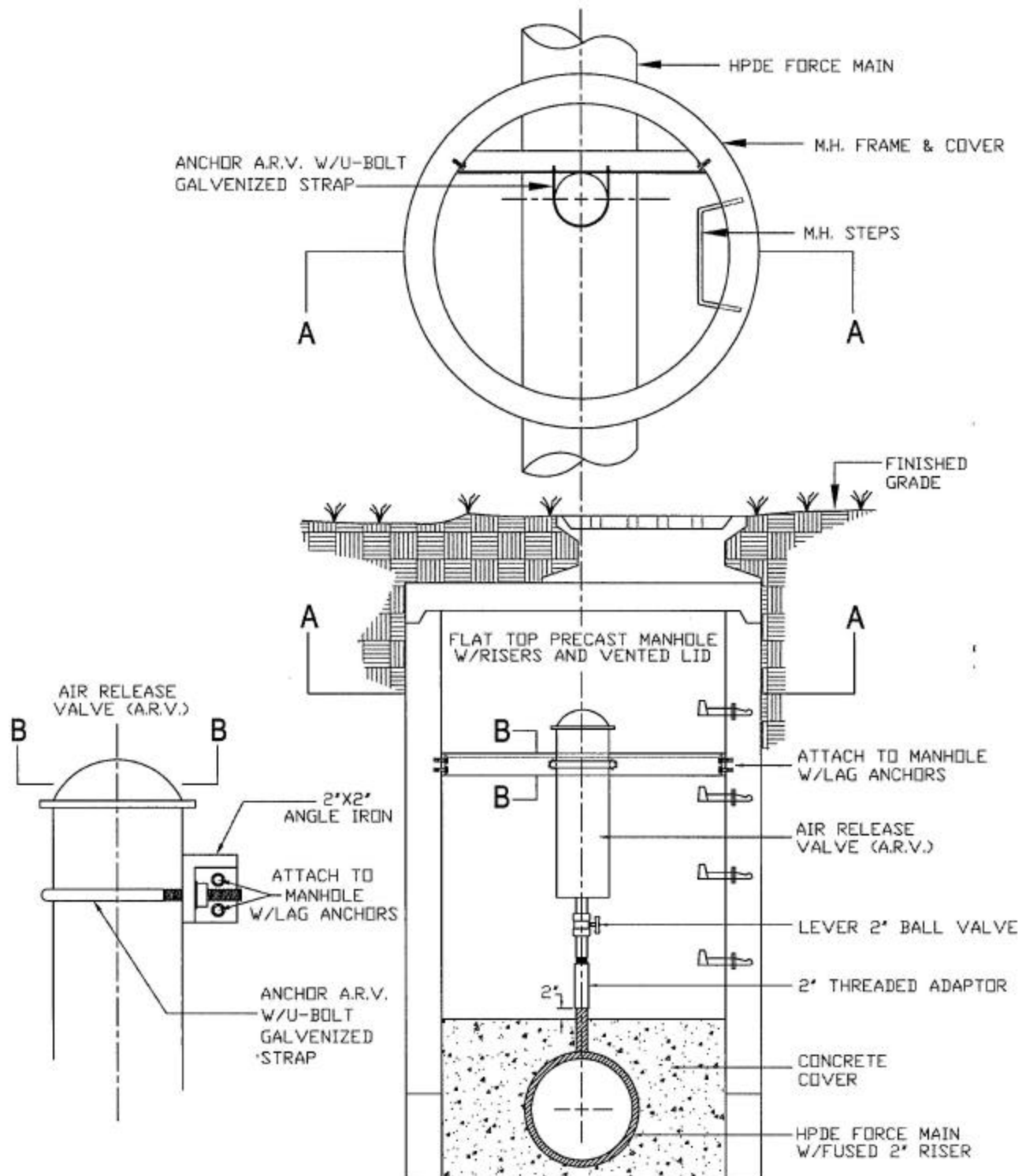
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REVISIONS  
June 2004

3" AND 4" METER VAULT

DRWG. NO.  
MET-9

# CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES



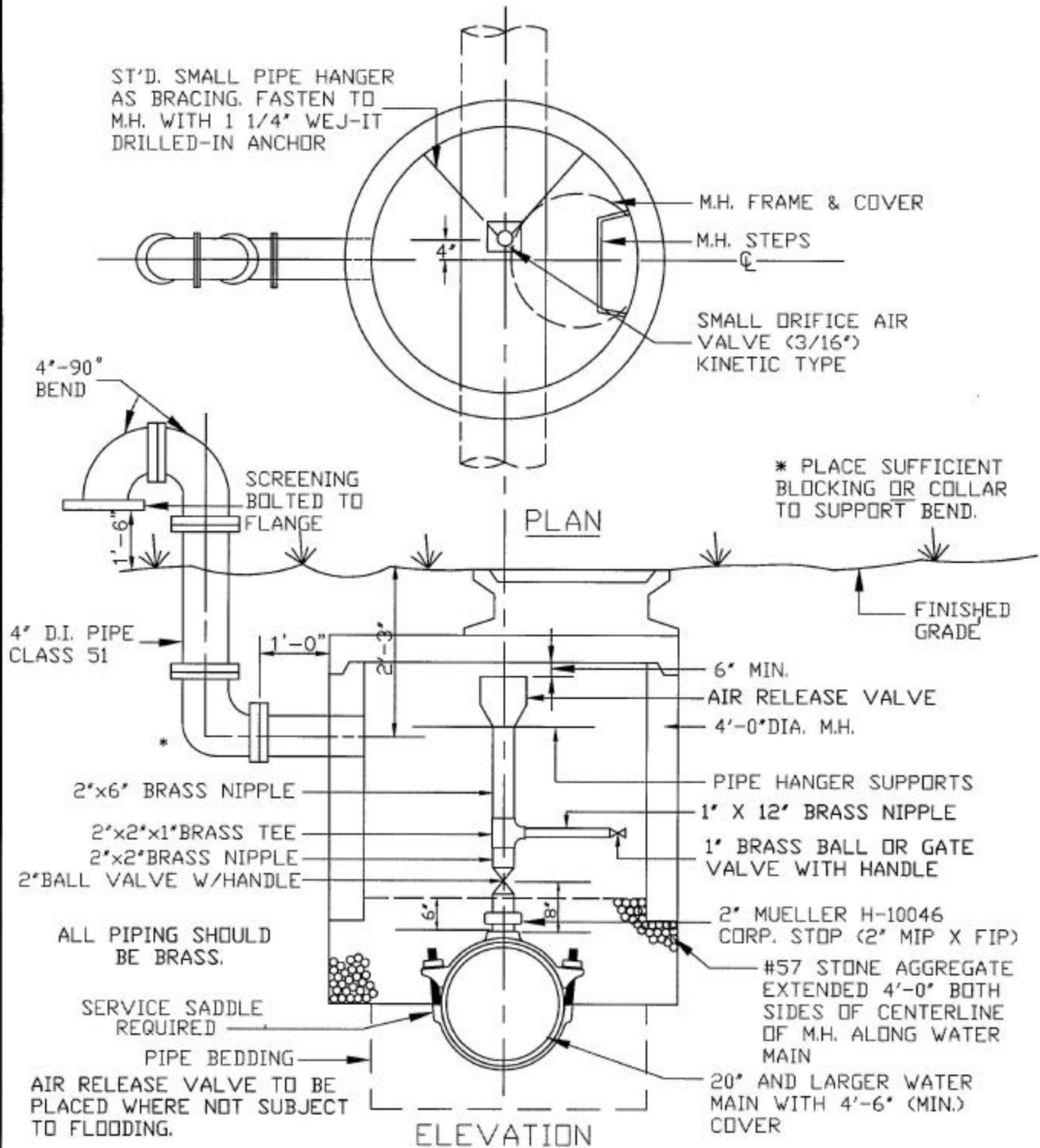
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June 2004

REVISIONS:

## AIR RELEASE VALVE FOR FORCE MAINS

DRWG. NO.  
SEW-12

# CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES



DATE  
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REVISIONS  
June 2004

## 2" AIR RELEASE VALVE ASSEMBLY

DRWG. NO.  
**WAT-2**

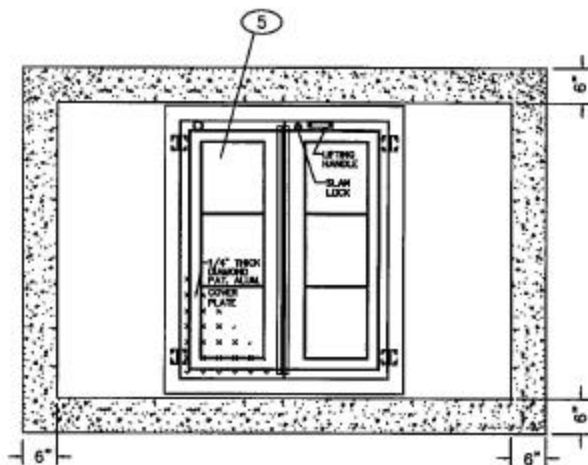
# CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES

## NOTES

- (a.) SLOPE INSIDE BOTTOM OF VAULT 1% TO SUMP
- (b.) PROVIDE APPROVED RETAINER GLANDS ON ALL M.J. FITTINGS AND VALVES. ALL PIPE AND FITTINGS FROM MAINLINE TEE TO VAULT TO BE RESTRAINED.
- (c.) CONTRACTOR SHALL SUBMIT PIPING SHOP DRAWINGS PRIOR TO FABRICATION OF PIPE OR POURING OF VAULT.
- (d.) ALL FITTINGS SHALL BE ASA A21.10 (AWWA C110)
- (e.) ALL RESILIENT SEAT VALVES SHALL BE NON-RISING STEM
- (f.) PROVIDE CONC. PIPE SUPPORTS AS REQ'D BY MATERIAL & EQUIPMENT MFG. REQUIREMENTS.
- (g.) M.J.= MECHANICAL JOINT, F= FLANGED, A= ANCHOR BOLT
- (h.) CONTRACTOR SHALL COORDINATE WITH LOCAL POWER SUPPLIER FOR EXTENSION OF THE PROPER POWER SUPPLY TO THE VALVE VAULT. ELECTRICAL CABLES IN VAULT SHALL BE IN PVC CONDUIT AND COMPLY WITH APPLICABLE ELECTRICAL CODES.
- (i.) ALL PIPING IN THE VALVE VAULT SHALL BE PRIMED AND PAINTED WITH AN EPOXY COATING. THE COLOR SHALL BE SAFETY BLUE.
- (j.) PRV'S NOT REQUIRING BYPASS VALVE SHALL BE CENTERED HORIZONTALLY IN VAULT.
- (k.) PRV'S GREATER THAN 12" DIAMETER - DESIGNED TO BE COORDINATED WITH UTILITIES O & M TECH SUPPORT.
- (l.) VAULTS ARE TO BE LOCATED IN AREAS NOT SUBJECT TO VEHICLE TRAFFIC LOADING - PRV'S WHERE IT IS NECESSARY TO SUBJECT THE VAULT TO VEHICLE TRAFFIC SHALL BE COORDINATED WITH UTILITIES O & M TECHNICAL SUPPORT.

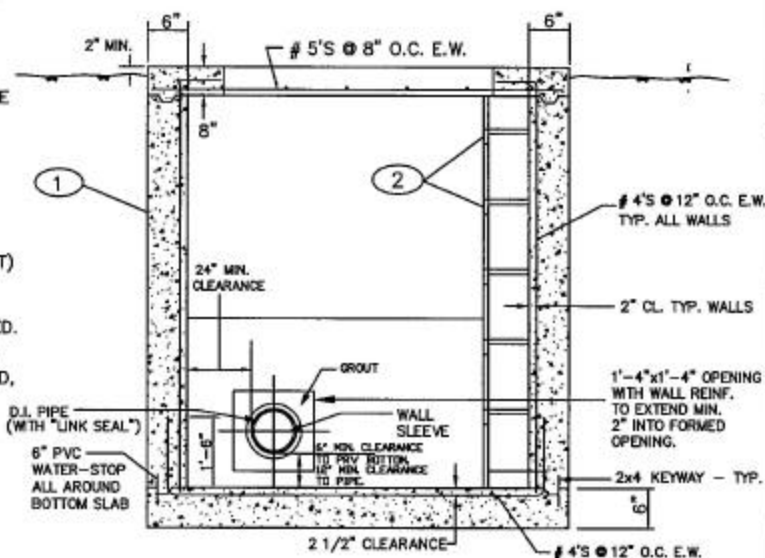
### P.R.V. & VAULT MATERIALS KEY

- 1 CONCRETE VAULT SEALED WITH WATER SEALANT (CLEAR FLO # 613 OR EQUAL)
- 2 ALUMINUM LADDER BOLTED TO VAULT WALL AND FLOOR. SAFETY EXTENSION TO BE PROVIDED WITH LADDER (HALLIDAY LTD LADDER AND L1E EXTENSION OR APPROVED EQUAL).
- 3 DRAINAGE SUMP
- 4 2" SCHEDULE 80 P.V.C. DRAIN LINE W/CHECK VALVE
- 5 ALUMINUM ACCESS DOOR - HALLIDAY W2C4848 OR APPROVED EQUAL.
- 6 CONCRETE THRUST BLOCK (SEE BLK-1, BLK-2)
- 7 4" PRESSURE GAUGE WITH 3/4" TAPS
- 8 CLASS 52 D.I. PIPE
- 9 SUMP PUMP - HYDROMATIC (1/3Hp, 1 1/4" OUTLET) OSP33AB OR APPROVED EQUAL.
- 10 PRESSURE REDUCING VALVE (PRV) GOLDEN-ANDERSON OR APPROVED EQUAL, FLANGED.
- 11 BYPASS PIPE W/PRESSURE REDUCING VALVE (PRV) GOLDEN-ANDERSON OR APPROVED EQUAL, FLANGED, WITH TWO GATE VALVES (HANDWHEEL TYPE)
- 12 WALL SLEEVE - (WITH LINK SEAL)
- 13 RESILIENT SEAT VALVE WITH BOX (MJxMJ)
- 14 RESILIENT SEAT VALVE (FxF) (HANDWHEEL TYPE)
- 15 90° BEND (MJxMJ)
- 16 ANCHORING TEE (MJxMJxA)
- 17 LIGHT (EXPLOSION PROOF)
- 18 CLASS 52 D.I. PIPE
- 19 TEE (FxFxF)
- 20 SLEEVE COUPLING
- 21 RESILIENT SEAT VALVE (BUTTERFLY VALVE-16" & OVER) AND BOX (MJxMJ).



TOP VIEW

NOT TO SCALE



SECTION B-B

NOT TO SCALE

DATE:  
JUNE 2000

REVISIONS:  
JUNE 2004

## PRESSURE REDUCING VALVE AND VAULT

DRWG. NO.  
**WAT-15**

SHT. 2 of 2

# **PART III**

**THE FOLLOWING PAGES ARE TO BE**

**INSERTED INTO PART III**

**OF THE**

**CHESTERFIELD COUNTY WATER AND SEWER  
SPECIFICATIONS AND PROCEDURES**

**PART III**

**COUNTY**

**WATER AND SEWER PROJECT**

**CONSTRUCTION SPECIFICATIONS**

**CHESTERFIELD COUNTY, VIRGINIA**

**INSTRUCTIONS for viewing and/or printing this document:**

To view PART III, click on the blue highlighted area above. After pulling up PART III, click on **“BOOKMARKS”** in the left hand margin of the document to locate various sections within the document. To print the document in its entirety, click FILE – PRINT. (When printing the document, please remember to print this table of contents and include it in your book.)

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The undersigned Bidder agrees to begin the work not later than ten (10) days after the date specified in the Notice to Proceed and to prosecute the work in such manner as to complete it within the time limit as set forth above. In the event the said work is not completed within the time limit above stated, Bidder shall be liable and hereby agrees to pay the Owner as liquidated damages and not as a penalty the sum of \$\_\_\_\_\_ dollars per calendar day for each and every day that the said work remains incomplete after the expiration of the substantial completion date and \$\_\_\_\_\_ dollars per calendar day for each and every day that the said work remains incomplete after the expiration of the Final completion date.

If the bid from the lowest responsible bidder exceeds available funds, the County may negotiate with the low bidder to obtain a contract price within available funds.

As Bidder, we have completed the Certification of NonCollusion reflected within the Bid Form Section.

Va. Contractor No. \_\_\_\_\_/Class \_\_\_\_\_/Specialty\_\_\_\_\_/Dated\_\_\_\_\_

(If an Individual, Partnership, or Non-Incorporated Organization)

Signature of Bidder:\_\_\_\_\_

By:\_\_\_\_\_

Business Address:\_\_\_\_\_

\_\_\_\_\_

(If a corporation)

Signature of Bidder:\_\_\_\_\_

By:\_\_\_\_\_

Business Address:\_\_\_\_\_

\_\_\_\_\_

Incorporated under the  
laws of the State of: \_\_\_\_\_

**CERTIFICATION OF NON-COLLUSION AND SIGNATURE SHEET**  
**This sheet must be signed and submitted with bid in order for bid to be considered.**

My signature below certifies:

- I agree to abide by all conditions of this Bid and that I am authorized to sign this Bid.
- The accompanying bid is not the result of or affected by, any act of collusion with another person or company engaged in the same line of business or commerce, or any act of fraud punishable under, Chapter 12, Title 18.2, 498.4 of the *Code of Virginia*, 1950, as amended. Furthermore, I understand that fraudulent and collusive bidding is a crime under the Virginia Governmental Frauds Act, the Virginia Government Bid Rigging Act, the Virginia Anti-Trust Act, and Federal Law and can result in fines, prison sentences, and civil damage awards.
- The accompanying bid is in compliance with the *State and Local Government Conflict of Interests Act* 2.2-3100, supplemented by Article 6, 2.2-4367-69 of the *Code of Virginia*. Specifically, no county employee, county employee's partner, or any member of the county employee's immediate family holds a position with the bidder, offeror, or contractor such as an officer, director, trustee, partner or the like, or is employed in a capacity involving personal and substantial participation in the procurement transaction, or owns or controls an interest of more than five per cent.

**Complete Legal Name of Firm:** \_\_\_\_\_

**Order From Address:** \_\_\_\_\_

\_\_\_\_\_

**Remit To Address:** \_\_\_\_\_

\_\_\_\_\_

**Signature:** \_\_\_\_\_

**Name (type/print):** \_\_\_\_\_ **Title:** \_\_\_\_\_

**Fed ID No.:** \_\_\_\_\_ **Phone (\_\_\_\_)** \_\_\_\_\_ **Fax (\_\_\_\_)** \_\_\_\_\_

**We hereby provide the following information to Chesterfield County regarding our business. We understand that it is provided for statistical purposes only and all firms submitting bids will receive equal consideration.**

**Minority Business Enterprise:**      Yes \_\_\_\_\_      No \_\_\_\_\_

**Woman-Owned Business:**      Yes \_\_\_\_\_      No \_\_\_\_\_

**Chesterfield Business:**      Yes \_\_\_\_\_      No \_\_\_\_\_

## **GENERAL CONDITIONS**

### **1. DEFINITIONS**

#### **A. AGREEMENT**

The agreement covering the performance of the Work and the furnishing of the materials for the proposed construction. The terms "Agreement" and "Contract" are synonymous and include all Contract Documents as that term is defined in the General Conditions.

#### **B. BID**

The proposal submitted by a Bidder on the Bid Form consistent with the Instructions to Bidders, to complete the Work for a specified sum of money and within a specified period of time.

#### **C. BIDDER**

An individual, firm, partnership or corporation qualified in accordance with the Virginia Public Procurement Act, and approved by the Owner, that submits a Bid for the Work, either directly or through a duly authorized representative.

#### **D. BID BOND**

The bond, with corporate surety, supplied by a Bidder to the Owner on the Bid Bond form included in the Bid Documents, that guarantees the Bidder's compliance with the Instructions to Bidders. A certified check payable to the owner, delivered with the Bid, may also constitute a Bid Bond.

#### **E. BID DOCUMENTS**

All Contract Documents that the Owner or Engineer provides to potential Bidders before the time established for the submission of Bids.

#### **F. CHANGE ORDER**

An amendment or modification to the Agreement, properly executed by authorized representatives of the Owner and the Contractor on the form provided in the Contract Documents.

#### **G. COMPLETION OF THE WORK**

Substantial completion shall be defined as the event when the Work has progressed to the point where, in the opinion of the



Engineer, it is sufficiently complete, in accordance with the Contract Documents, so that the Work can be utilized for the purposes for which it is intended.

Final completion shall be defined as the event that occurs when (1) the Work has been completed, successfully tested and approved in accordance with the Contract Documents, (2) all submittals required by the Contract Documents (including Operation and Maintenance Manuals) have been made, (3) all Punch List items and restoration Work required by the Contract Documents has been completed; and (4) Work is complete and ready for final payment as evidenced by Engineer's written recommendation for final payment. The Contractor's use of water or wastewater lines for the purpose of completing the testing of equipment or piping, the tie-in of water or wastewater lines, or the continued use of equipment or piping because of tie-ins or testing shall not constitute Completion of the Work until all conditions of this definition have been satisfied.

#### **H. CONTRACT BONDS**

The Performance Bond and Labor and Material Payment Bond executed by the Contractor, with corporate surety, on the forms provided in the Contract Documents.

#### **I. CONTRACT DOCUMENTS**

The Advertisement, Instructions to Bidders, Bid Form, Bid Bond, Bond Requirements, Agreement, General Conditions, Supplemental General Conditions, Insurance Provisions (Including Instructions Regarding Insurance Certificates), Labor and Material Payment Bond, Performance Bond, Notice of Award, Notice to Proceed, Escrow Agreement (when used), Change Orders, Drawings, Specifications and Addenda, Special Provisions and any other document incorporated by reference into one of these documents.

#### **J. CONTRACT PRICE**

The amount of money which the Owner and the Contractor have agreed that the Owner will pay to the Contractor for performing and completing the Work.

**K. CONTRACTOR**

The party that has contracted to perform and complete the Work.

**L. ENGINEER**

The consulting engineer who has been designated by the County as engineer for the project, and the Engineer's authorized agents, inspectors or representatives.

**M. FINAL ACCEPTANCE**

The event that occurs when the Engineer issues to the County or the County issues to the Contractor a written statement that the Contractor has completely performed all Punch List items, has made all necessary submittals to the Owner and Engineer and has satisfied all of the Contractor's obligations under the Contract Documents.

**N. FINAL INSPECTION**

The inspection conducted by the Engineer to determine what items of the Work must be completed by the Contractor in order for Completion of the Work to occur. After the Final Inspection is conducted, the Engineer shall provide the Contractor with a Punch List that the Contractor must complete in order for Completion of the Work to occur. The Owner may perform the Final Inspection instead of, or together with, the Engineer.

**O. FINAL PAYMENT**

Payment by the Owner to the Contractor after Completion of the Work of retainage, and Force Account and Change Order items, if any, so that the Contractor has received all payments due him under the terms of the contract documents for performing and completing the Work.

**P. FORCE ACCOUNT - EXTRA WORK**

Work not within the Scope of Work as described in Paragraph 17 of the General Conditions that is determined to be necessary by the owner and Engineer.

**Q. INSPECTOR**

The person appointed by the Owner to carry out instructions given by the Owner and to inspect the Work performed and the materials supplied by the Contractor pursuant to this Agreement.

**R. OWNER**

Chesterfield County, Virginia, a political subdivision of the Commonwealth of Virginia, and its duly authorized officials, agents and employees.

**S. PLANS**

All drawings or reproductions of drawings that depict or relate to the Work. A pictorial representation of the Work or some portion of the Work, showing design, location and dimensions.

**T. PUNCH LIST**

The list provided to the Contractor by the Engineer or owner after Final Inspection that includes all items that the Contractor must complete in order for Completion of the Work to occur.

**U. SPECIAL PROVISIONS**

The Owner's list of Materials and Manufacturers Approved by the Department of Utilities and any Supplemental General Conditions included in the Contract Documents.

**V. SPECIFICATIONS**

The directions, provisions and requirements contained in the Contract Documents relating to the method or manner of performing the Work, or to the quantity or quality of materials to be furnished under the Contract Documents.

**W. SUBCONTRACTOR**

Any individual, firm or corporation having a direct contract with the Contractor for the performance of any part of the Work.

**X. SUPERINTENDENT**

The person appointed by the Contractor who is in direct charge of the Work for the Contractor.

**Y. TIME OF COMPLETION**

The time agreed upon by the Owner and the Contractor in the Agreement by which the Contractor is required to accomplish Completion of the Work, plus any extensions of time granted to the Contractor by the Owner pursuant to the Contract Documents.

**Z. THE WORK**

The whole and any part of the construction, labor, materials, equipment, incidentals or services necessary for the Contractor to achieve Completion of the Work as required by the Contract Documents.

**2. AGREEMENT CONSTRUED UNDER VIRGINIA LAWS**

The Agreement and Contract Bonds shall be executed in the State of Virginia and shall be construed in accordance with the laws of the State of Virginia. Any action at law, suit in equity or other adjudicatory proceeding instituted as a result of the performance, non-performance or alleged breach of this Agreement shall be brought in the Circuit Court of the County of Chesterfield, Virginia, to the express exclusion of any other judicial forum.

**3. ASSIGNMENT OF AGREEMENT**

Neither the Agreement, nor any part thereof, nor any monies due or that become due to the Contractor pursuant to the Agreement, may be assigned by Contractor without the prior written approval of the Owner.

**4. SERVING OF NOTICE**

When the owner is required by the Contract Documents to give written notice, demand or other communication to the Contractor, the Owner's notice, demand or communication shall be deemed to be given when it is deposited in the United States mail, postage pre-paid, and addressed to the address of the Contractor stated in the Agreement or at such other address as the Contractor designates in writing to the Owner.

**5. LAWS AND REGULATIONS**

The Contractor shall comply with all State and Federal laws, local ordinances, other regulations and orders or decrees of bodies or tribunals having jurisdiction over the Contractor or the Work and that affect the performance of the Work or the people who are employed or engaged in performing the Work.

The Contractor shall defend, indemnify and hold harmless the owner and its officers, agents and employees against any claim, liability or judgment arising from or based on the violation of such laws, ordinances, regulations, orders or decrees, whether the violation is committed by the Contractor or by its agents, employees, subcontractors or suppliers.

**6. COMPLIANCE WITH SAFETY AND HEALTH LAWS**

The Contractor shall comply with the Rules and Regulations Governing the Safety and Health of Employees Engaged in Construction and all revisions thereto, as adopted by the Safety and Health Codes Commission of the Commonwealth of Virginia and issued by the Virginia Department of Labor and Industry.

The Contractor shall perform all construction operations in accordance with all laws, rules and regulations of the U.S. Occupational Safety and Health Act of **1970**, the Standards of the U.S. Department of Labor, Occupational Safety and Health Administration and the latest amendments thereto.

**7. JOB SAFETY**

The Contractor is responsible for maintaining and implementing appropriate safety measures performing of the Work. The Engineer has not been retained to provide construction review services relating to the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform the Work.

**8. SANITARY PROVISIONS**

The Contractor shall provide and maintain in a neat and sanitary condition sufficient portable toilets and sanitary facilities for the use of its employees and the employees of subcontractors.

**9. USE OF WATER**

The Contractor shall not withdraw water from the Owner's facilities for any purpose unless suitable arrangements for withdrawal have been made with the Owner through the Inspector.

**10. FIRE PREVENTION**

The Contractor shall take all necessary precautions to prevent the outbreak of fire on the job site and to immediately suppress any fire which does occur.

**11. CLEAN UP OF JOB SITE**

The Contractor shall clean up the job site as the Work progresses. If the Contractor fails to keep the job site clean, the owner may require the Contractor to stop all or any portion of the Work until the job site is clean.

**12. DESIGNATION OF WORK AREAS**

The Owner reserves the right to designate the order in which the Contractor performs the Work.

**13. PERMITS**

The Owner shall obtain a permit from the County's Environmental Engineering Department for land disturbing activity and solid waste disposal. The Contractor shall be bound by the conditions contained in the land disturbance permit.

Except as otherwise provided in this paragraph, the Contractor must obtain all required licenses and permits and pay all charges and expenses for obtaining the permits. The Contractor shall determine what permits it must obtain to perform the Work.

**14. PATENTS, FEES, ROYALTIES AND LICENSES**

If the Contractor uses any device, material or process covered by trademark, patent or copyright, it shall obtain permission to use the device, material or process by executing a suitable legal agreement with the owner of the trademark, patent or copyright, and a copy of the agreement shall be filed with the owner before the Contractor uses the device, material or process.

The Contractor shall protect, indemnify and hold harmless the Owner and its officers, agents and employees from all claims or suits for infringement resulting from Contractor's use of any patented device, design, material or process or the Contractor's use of any trademark or copyright in connection with the Work. The Contractor shall protect, indemnify and hold harmless the Owner and its officers, agents and employees from any costs, expenses or damages, including reasonable attorney's fees which the Owner may suffer or incur at any time by reason of any alleged or actual patent, trademark or copyright infringement.

**15. CONTRACT BONDS**

Contract Bonds shall be executed on the form provided by the Owner in the Contract Documents and shall be in an amount not less than the full Contract amount, including any increases in the Contract amount that may be agreed upon between the owner and Contractor pursuant to the Contract Documents.

**16. PRE-CONSTRUCTION CONFERENCE**

Representatives of the Owner, the Engineer, and the Contractor shall meet and conduct a pre-construction conference at least three (3) days before the Contractor begins to perform the Work. A summary of the conference shall be prepared by the Engineer and distributed to the Owner and the Contractor. The Contractor shall acknowledge receipt of the Engineer's summary in writing to the Owner. Appendix A at the end of Part III of these specifications contains a list of issues generally discussed in the pre-construction conference.

**17. SCOPE OF WORK**

The Contractor shall perform in a workmanlike manner all work described in or reasonably implied by the Contract Documents; all additional or incidental work that is necessary to complete the Work to the finished lines and grades; and all Work necessary to connect the Work with adjoining work or facilities. The Contractor shall furnish all implements, machinery, equipment, tools, material, labor and construction expertise necessary to perform the Work.

**18. FAMILIARITY WITH PROPOSED WORK**

The Contractor has made a thorough examination of the Contract Documents and has fully informed itself of the quality of materials and character of the workmanship required to perform and complete the Work.

**19. RESPONSIBILITY FOR ACTIONS OF WORKMEN**

All employees of the Contractor and subcontractors are servants of the Contractor and subcontractors. They are not employees of the Owner. The Contractor shall not be relieved from responsibility or liability on account of any fault or delay in the execution of the Work, or any part thereof, resulting from the actions or inaction of any such employee or any material supplier.

**20. INSPECTOR**

The Inspector is authorized by the Owner to inspect and approve all Work and materials. In case of any dispute arising between the Contractor and the Inspector over materials furnished or the manner of performing the Work, the Inspector has the authority to reject material or suspend Work until the dispute is resolved by the Engineer. The Inspector is not authorized to revoke, alter, enlarge, relax or waive any requirements of the Contract Documents or to approve or accept any portion of the Work or issue instructions contrary to the Contract Documents.

The Engineer and Inspector shall have access at all times to all of the Work.

The Contractor shall have a level or transit and grade rod available on the job site and in good working condition at all times to assist the Inspector.

**21. SUPERINTENDENT**

The Contractor shall supervise the Work and shall be represented by a Superintendent who shall have full authority to act on behalf of the contractor as the Contractor's agent and representative. The Superintendent or Contractor shall be on duty at all times while the Work is being done.

**22. MATERIALS AND WORKMANSHIP**

The Contract Documents describe the character and features of the materials and workmanship required to perform the Work. The Contract Documents require first class work and materials in all particulars. In case of any disagreement between the Owner and the Contractor about the meaning and intent of the Contract Documents, the Engineer shall determine the meaning and intent, and the Engineer's determination shall be binding on the Contractor.

**23. NO DEVIATION FROM CONTRACT DOCUMENTS BY THE CONTRACTOR**

In performing the Work, the Contractor shall not deviate from the Contract Documents without the written consent of the Engineer and the Owner. If the Contractor does deviate from the Contract, it shall correct the deviation at its expense in a manner satisfactory to the Engineer and the Owner.

**24. INTERPRETATION OF CONTRACT DOCUMENTS**

In case of discrepancy between or among the Contract Documents, the Engineer shall make all interpretations that are necessary to fulfill the intent of the Contract Documents. The Engineer's interpretation shall be binding on the Contractor.

The Contractor shall verify all figures on the Plans and shall be responsible for the proper coordination of all dimensions as well as all different parts of the Work.

**25. DISCREPANCIES**

The Contractor shall immediately report to the Engineer, in writing, all discrepancies that it finds between the Contract Documents and site conditions and any inconsistencies or ambiguities in the



Contract Documents. The Engineer shall promptly correct such discrepancies, inconsistencies or ambiguities in writing. Work done by the Contractor after it discovers such discrepancies, inconsistencies or ambiguities shall be performed at the Contractor's risk.

**26. CONFLICTS WITH LAWS, RULES OR REGULATIONS**

If any requirement of the Contract Documents conflicts with the requirements of any governmental authority having jurisdiction over the project or the job site, then to the extent of such conflict, the Contract Documents shall be superseded by the applicable law, rule or regulation.

**27. CONTRACTOR'S RESPONSIBILITY FOR THE WORK**

The Contractor shall be responsible for the Work, and shall take all precautions to prevent injuries to persons and property on or about the Work. The Contractor shall bear all losses resulting from any difference in the amount or character of the Work from what the Contractor estimated or expected, or from any difference in the nature of the land in which or on which the Work is done from what the Contractor expected. The Contractor shall defend, indemnify and hold harmless, the Owner, its officers, and agents from all claims relating to labor and materials furnished for the Work; from all claims for violation of patents, trademarks and copyrights used in performing the Work; from injuries to any person performing the Work; from improper materials, implements or labor used; and from any act, omission or neglect of the Contractor, any subcontractor or their employees.

Until Final Acceptance of the Work, the Work shall be under the charge of the Contractor, and the Contractor shall take all necessary precautions against injury or damage to the Work or to any part of the Work from any cause whatsoever, whether arising from the execution or the non-execution of the Work.

The Contractor shall rebuild, repair, restore and make good, at his expense, all injuries or damage to the Work occasioned by any of the above causes before Final Acceptance of the Work.

**28. CHARACTER OF WORKMEN AND EQUIPMENT**

The Contractor and all subcontractors shall employ competent superintendents, foremen and workmen who shall perform the Work in a workmanlike manner. The Owner may demand that the Contractor

discharge or remove from the project any employee the Contractor or any subcontractor who is incompetent or negligent in the performance of his duties, or who refuses or neglects to comply with the directions of the Owner, Engineer or Contractor. Any person so discharged from the project shall not be employed again without written consent of the Owner.

**29. INCREASED OR DECREASED WORK**

The Owner may increase or decrease the value of the Work at any time, with or without the agreement of the Contractor, in an amount not to exceed \$10,000 or 25 percent of the Contract Price, whichever is greater. The Owner may increase or decrease the Work by adding, omitting or relocating sections, whether shown on the Plans or not.

If the increase, decrease, or relocation of the Work is substantially the same in nature as the remainder of the Work, then the Contract Price shall be adjusted based on the unit prices contained in the Contract Documents. Whenever additional work involves a substantial change in the nature of the design of the Work or in the type of construction, the additional Work shall be performed in accordance with the specifications and as directed by the Engineer, provided, however, that before the Contractor begins to perform the additional Work, a Change Order shall be executed by the parties.

**30. WORK IN BAD WEATHER**

No Work shall be performed during stormy or inclement weather unless it can be performed in a satisfactory and workmanlike manner.

**31. WORK OUTSIDE OF NORMAL WORKING HOURS**

Normal working hours for the project are 8:00 A.M. to 4:30 P.M., Monday through Friday. If the Contractor desires to perform work outside of the normal working hours, it shall request the Owner's permission at least 48 hours in advance of the time when the Contractor proposes to perform the Work. The Owner may refuse the Contractor permission to work outside of normal working hours for any reason, including but not limited to the owner's difficulty in making arrangements for proper inspection of the Work. The Contractor shall avoid making undue noise when working outside of normal working hours. Under normal circumstances the Contractor will not be permitted to work on Sundays or on holidays without written approval from the Owner.

The contractor may request, in writing, different normal working hours than those stated above. The revised work hours must be agreed upon by the Inspector and approved by the Owner in writing. Work in excess of 40 hours per week shall be considered overtime work.

The Owner reserves the right to require the Contractor to work outside of normal working hours in the interest of public safety or convenience. No claim for additional compensation shall be made by the Contractor when such occasions occur.

Except for Work that is scheduled outside of normal working hours by the Owner in order to promote public safety or convenience, the Contractor will be liable for the expense of overtime work of the Owner's employees required by reason of the Contractor performing work outside normal working hours.

### **32. CHANGE OF PLANS**

The Engineer, with the approval of the Owner, may make alterations for line, grade, plan positions, dimensions, materials or any other part of the Work, either before or after commencement of the Work.

### **33. CERTIFICATION OF MATERIALS**

The Contractor shall furnish to the Engineer and the Inspector a notarized certification from the Supplier or Manufacturer that all materials meet applicable AWWA and ASTM Standards and the Owner's Water and Sewer Standard Details as set forth in the Owner's Water and Sewer Specifications (latest revision). The Contractor shall submit to the Owner at least three (3) copies of each certification. The Contractor shall provide the Owner with additional copies when requested to do so by the Owner or Engineer. All copies of the certifications will be returned to the Contractor after the Owner has reviewed them and accepted the material.

### **34. CORRECTION OF WORK**

The Contractor shall promptly remove from the premises all work rejected by the Engineer or Inspector for failure to comply with the Contract Documents, whether the rejected work is incorporated into the Work or not. After removing the rejected work, the Contractor shall promptly replace and re-execute the work in accordance with the Contract Documents, without expense to the Owner. The Contractor shall repair, at its own expense, all work of other contractors that is destroyed or damaged by the Contractor or any subcontractor.

All removal and replacement work shall be performed at the Contractor's expense. If the Contractor does not remove rejected work within ten (10) calendar days after it receives written notice from the Owner or Engineer to remove it, the Owner may remove the rejected work, and store the materials, at the expense of the Contractor.

### **35. EXISTING STRUCTURES**

The location of existing sewers, water and gas pipes, conduits and other structures across, along or under the area of the Work are not necessarily shown on the Contract Documents, and if shown, the description, composition, location, depth and dimensions of those structures may not be correct. The Owner shall not be responsible to the Contractor for any delays or extra costs incurred by the Contractor as a result of any discrepancy between the actual location of existing structures and the Contract Documents or as built drawings. The Contractor shall have a working pipe locator on the job at all times.

The Contractor shall dig such test holes as are needed to locate existing underground structures. The contractor shall dig such test holes only after giving 48 hours prior notice to the Owner and to the owner of the underground structure.

### **36. CARE FOR EXISTING STRUCTURES**

The Contractor shall be liable for all damage to any existing structure or property arising from its negligence or carelessness. The Contractor shall protect and maintain all underground, overhead or surface utilities encountered while performing the Work. The Contractor shall locate and adjust water valve boxes on existing water lines in order to facilitate turning water off so that appropriate tie-ins can be made.

Forty-eight (48) hours prior to commencing work, the Contractor shall contact the Utility Information Center ("Miss Utility"), telephone number 1-800-552-7001, for assistance in locating existing underground utilities.

The Contractor shall not kill, deface or cut down trees unnecessarily, both within and outside of project work areas or easements.

The Contractor shall be responsible for all damage to property not in the Work area or easements.

### **37. SUBSURFACE CONDITIONS**

The Contractor shall promptly, and except in an emergency, before such conditions are disturbed, notify the owner in writing of subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents; or of physical conditions at the site, either unknown or differing from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

**38. INDEPENDENT TESTING**

The Owner may employ an independent testing laboratory to conduct tests of materials, supplies, machinery, tools, or other equipment supplied by the Contractor when the Owner believes it to be necessary to assure compliance with the Contract Documents. The Contractor shall cooperate with the Owner in facilitating these tests.

**39. EXTRA WORK - FORCE ACCOUNT**

Any work that is necessary for Completion of the Work that is not described in the Scope of Work (Paragraph 17 of the General Conditions) is Extra Work and shall be paid for in one of the following manners:

- A. At a price agreed upon in writing between the Contractor and Owner.
- B. In the event of work covered by unit prices, at a price derived from application of unit prices to the quantities necessary to complete the extra work.
- C. In the event of work not covered by unit prices, at actual cost plus fifteen percent (15%). If the Extra Work is performed by a previously approved subcontractor, then at actual cost plus fifteen percent (15%) for the subcontractor, and five percent (5%) for the Contractor. Actual cost shall include only the necessary labor (including workmen's compensation, insurance, premiums and payroll taxes), equipment rental (including fuel and lubrication for equipment used in performing the Extra Work), and materials. Equipment rental cost shall be the amount actually paid by the Contractor for rental of the equipment, pro-rated rental rate for the time the equipment was used to perform the Extra Work, or the pro-rated rental rate for the equipment as shown in the latest rate schedule compiled by the Associated Equipment Dealers, whichever is lower. The Engineer shall determine the Contractor's actual cost for performing Extra Work, and the Engineer's determination shall be binding on the Contractor. Under no circumstances shall the Contractor be entitled to any sum of money for performing Extra Work, or for any delays that the Contractor alleges it suffered as a result of performing Extra Work, above actual cost plus 15% (or 15% and 5% when applicable) as outlined above.

Change Orders shall be agreed upon prior to beginning Extra Work. No Change Order shall in any manner or to any extent relieve the Contractor or his Surety of any obligation under the contract. All Change Orders given in accordance with the Agreement are a part of the Agreement and are subject to each and every term or requirement of the Agreement.

The Contractor is responsible for all damages caused by the carelessness or lack of skill of the Contractor, the subcontractors, or employees of the Contractor or subcontractor in doing Extra Work.

#### **40. PROGRESS OF THE WORK**

The Contractor shall provide an adequate force of labor and equipment to prosecute the Work to insure the Completion of the Work within the time limit for Completion as set forth in the Agreement.

If required by Owner or Engineer, the Contractor shall furnish a progress schedule to the Owner and Engineer in a form acceptable to the Engineer within ten (10) calendar days after the request is made. The Contractor shall provide all manpower and equipment necessary to meet the progress schedule. In the event periodic estimates indicate that the schedule progress is not being met, the Owner or Engineer may require the Contractor to furnish in writing to the Engineer the method the Contractor proposes to employ to bring the project into compliance with the progress schedule. The Owner may withhold payments if the Work is behind the progress schedule or otherwise not being performed in accordance with the terms of the Contract Documents.

#### **41. TIME OF COMPLETION**

Time is of the essence in performing this Contract. The Contractor shall perform and complete the Work in accordance with the Contract Documents before the expiration of the time limit stipulated in the Bid, the Agreement and any extensions of time that are agreed upon pursuant to the procedure for granting extensions of time set forth in the Contract Documents. The amount of time permitted for Completion of the Work contemplates ordinary delays to construction work of a similar character. The Contractor shall not be entitled to an extension of time or additional compensation for ordinary delays in the Completion of the Work or for delays occasioned by inclement weather or accidents. Such delays will not relieve the Contractor from maintaining the rate of progress specified herein or from completing the Work within the stipulated time limit.

If delays are caused by acts of God, acts of government, unavoidable strikes, Extra Work, or other causes or contingencies not enumerated in the preceding paragraph and if they are beyond the control or responsibility of the Contractor, the Contractor may request the Owner to allow additional time to perform and complete the Work. If the Owner determines that the delay is properly excusable, the Owner will, in writing, extend the time for completion of the Work by the amount of time that the Owner believes to be appropriate. The Contractor agrees that such extension of time shall constitute his sole remedy against the Owner for such delays. Contractor shall not have or assert any claim for, nor shall he be entitled to any additional compensation or damages on account of such delays. If the delay is due solely to the negligence of the Owner, or any of its officers or employees, the Contractor may also request from the Owner an adjustment in the Contract Price for actual costs incurred by the Contractor to perform and complete the Work. The Contractor shall be entitled to an adjustment in Contract Price only for actual costs, as that term is defined in Paragraph 39, in the General Conditions, entitled Extra Work-Force Account. If the owner determines that the delay is of the nature described in this subparagraph and that an adjustment in price is warranted, the owner may, in writing, grant an adjustment in the price for the Work in amount deemed appropriate by the Owner.

Within ten (10) calendar days from the beginning of any delay for which Contractor is entitled to an extension of time or additional compensation, the Contractor shall submit in writing to the Owner, with a copy to the Engineer, its request for adjustment in price or extension of time for the completion of the Work. Any such request shall set forth the cause and particulars of the delay, the details of the delay, and documentation supporting the extension or adjustment requested. The Owner shall review the information and documentation submitted by the Contractor and shall respond to the Contractor

in writing. If the Contractor fails to comply with any requirement of this subparagraph the Contractor shall be precluded from making any claim for an adjustment in the Contract Price or extension of time for Completion of Work due to the delay. In no event shall the Owner's officers, agents or employees have any liability to the Contractor, any subcontractors, or any agents, servants or employees of the Contractor or sub-contractors with respect to or arising out of any actual or alleged delay in the Contractor's performance.

The Owner may delay the beginning of the Work or any part thereof because it has not obtained a necessary property interest in the land on which the Work or some portion of the Work, is to be performed. The Contractor shall have no claim for additional compensation or damages on account of such delay, but shall be entitled to request an extension of time as herein provided.

#### **42. TERMINATION FOR BREACH OF NON-PERFORMANCE**

If the Contractor fails to perform the Work promptly and diligently, or if the Contractor breaches the Agreement in any other way, the Owner may:

- A.** After providing the Contractor with fifteen (15) days written notice, supply any workmen, equipment or materials necessary to ensure that the work is performed promptly and diligently. The Owner may deduct the cost of supplying additional workmen, equipment or materials from payments due to the Contractor;
- B.** Terminate the Agreement, enter upon the premises, take possession of all equipment, materials or appurtenances, and employ any person or persons to finish the Work.

In case of termination of the Agreement by the Owner pursuant to this paragraph, the Contractor shall not be entitled to receive any further payment from the Owner until Completion of the Work has occurred. After completion of the Work, the Owner shall pay to the Contractor the amount of the unpaid balance due to the Contractor at the time the Agreement was terminated minus the cost incurred by the Owner to complete the Work. If the cost incurred by the Owner to complete the Work exceeds the unpaid balance due to the Contractor, the Contractor shall be due no money from the Owner and, instead, the Contractor shall pay to the Owner the difference between the unpaid balance due and the Owner's cost to complete the Work.

The cost incurred by the Owner to complete the Work shall be audited by the Engineer. The Engineer's certification of the Owner's cost shall be binding upon the Contractor.

#### **43. WAIVER OF ONE BREACH NOT WAIVER OF OTHERS**

No waiver by the Owner or its agents or employees of any breach of this Agreement by the Contractor shall be construed as a waiver of any other or subsequent breach of the Agreement by the Contractor. All remedies provided by this Agreement are cumulative, and in addition to each and every other remedy under the law.

#### **44. LIQUIDATED DAMAGES**

The rate of progress, and the time for completion of the Work are essential conditions of the Agreement. The Work shall be prosecuted regularly, diligently and without interruption at a rate that will ensure Completion of the Work in the time specified in the Contract Documents.



Time is of the essence of this Agreement.

If the Contractor fails to accomplish Substantial Completion of the Work in accordance with the Contract Documents within the time stated in the Agreement or in any progress schedule or within any time as extended in writing by the Owner, the Contractor shall pay to the Owner the sum of \$\_\_\_\_\_ for each and every calendar day after the date agreed upon by the parties for Substantial Completion has passed until Substantial Completion of the Work is accomplished.

If the Contractor fails to accomplish Final Completion of the Work in accordance with the Contract Documents within the time stated in the Agreement or in any progress schedule or within any time as extended in writing by the Owner, the Contractor shall pay to the Owner the sum of \$\_\_\_\_\_ for each and every calendar day after the date agreed upon by the parties for Final Completion has passed until Final Completion of the Work is accomplished.

The above sums are agreed upon by the parties as the liquidated damages, and not a penalty, that the Owner will suffer by reason of the delay by the Contractor in accomplishing Completion of the Work, resulting in the inability of the Owner to use the improvements at the time agreed upon the parties for Completion. The Owner may deduct and retain liquidated damages out of any monies which may be due, or become due, to the Contractor.

#### **45. SHOP DRAWINGS**

Contractor shall submit to the Engineer for its approval detailed Shop or Working Drawings ("Shop Drawings") when required to do so by the Engineer for the construction of any part of the Work. Any work done or materials ordered by the Contractor before the Engineer has approved the Shop Drawings relating to the Work or material shall be at the risk of the Contractor.

The Contractor shall bear the cost of preparing all Shop Drawings and blueprints. The Contractor shall supply three (3) copies of all Shop Drawings and blueprints to the Engineer.

All certifications, Shop Drawings and Working Drawings shall include for each product, the manufacturer's name, the type of product, the location of the manufacturer's plant, and the project name and number.

The Contractor shall furnish the Engineer with all blue prints, copies of Shop Drawings and material certifications that are required by the Engineer for approval. Upon Completion of the Work, the Contractor shall submit the original tracings to the Engineer, if the Engineer so requires.

The purpose of Shop Drawings is to demonstrate to the Engineer that the Contractor understands the design concept of the Work by indicating which equipment and material it intends to furnish and install and by detailing the fabrication and installation methods it intends to use. The Engineer's approval of Shop Drawings relates to the general concept and not the detail of the Work, and the Engineer's approval will not relieve the Contractor from responsibility for errors or omissions in dimensions or quantities. Approved Shop Drawings are not Change Orders.

The Contractor shall also submit to the Engineer and Inspector Shop Drawings for operation manuals for machinery and equipment installed by the Contractor in Pump Stations, Tanks, Pressure Reducing Vaults, Treatment Plants and when otherwise required by the Engineer. These Shop Drawings shall be provided to the Engineer at the earliest possible time and in no case less than 48 hours before the Contractor begins to perform the Work, in order to avoid any unnecessary delays in beginning the Work.

If approved Shop Drawings deviate from or conflict with the Contract Documents, the Contractor shall comply with the Contract Documents.

#### **46. CUT SHEETS**

When required by the Owner, the Contractor shall submit three copies of construction "cut-sheets" to the Owner's Department of Utilities prior to beginning the Work. "Cut-sheets" shall show the centerline, the offset hub elevations and the amount of cut to be made by the Contractor before it installs the improvements. Cut sheets are required on all gravity and force main wastewater projects, on water line projects where the final grade on future roads and paved areas cannot be determined, and on projects where lines are installed in easements. Cut sheets shall be prepared by a qualified engineer or surveyor. Cut sheets shall contain the following information:

- A.** Temporary bench marks at each manhole.
- B.** The location of each downgrade manhole, beginning with station 0+00 and identifying adequately the station of each service connection.
- C.** Elevations of centerline cuts every 25 feet when the Owner is paying all or some portion of the cost of the project.
- D.** Centerline elevations every 50 feet and at every valve box and manhole location for water line projects and for force main projects.

#### **47. FINAL INSPECTION**

Before Final Inspection of the Work, the Contractor shall clean up the site of the Work including all rights-of-way, and shall leave the site in a clean, neat and sanitary condition. Contractor shall remove all machinery, tools, surplus material, temporary buildings, and other structures from the site of the Work.

When the Work is complete and the area cleaned up, the Contractor shall request a Final Inspection of the Work by the Engineer and Owner. After the Final Inspection, the Engineer shall prepare a Punch List. After the Contractor has completed all Work on the Punch List, and the project is ready for Final Acceptance by the Owner, the Contractor shall request in writing an inspection for Final Acceptance of the Work by the Engineer and Owner.

#### **48. USE OF WORK**

Whenever in the opinion of the Engineer or Inspector any portion of the Work is completed or in acceptable condition for use, it may be used by the Owner for the purpose intended. However, such use by the Owner does not constitute acceptance of any portion of the Work, or a waiver of any of the provisions of the Contract Documents.

#### **49. PAYMENT**

If the Contractor performs properly all of the obligations of the Contract Documents, the owner shall pay the Contractor for the performance of the Work in the manner and within the time specified in the Contract Documents. The Owner also agrees to pay the Contractor for Extra Work in accordance with the terms of the Contract Documents. The Contractor shall make requests for payment by submitting the original and four (4) copies of the monthly estimate for partial payment to the Owner on a form acceptable to the Owner, as set forth in Paragraph 51 of the General Conditions, entitled Monthly Estimates.

#### **50. SALES AND USE TAXES**

The Owner shall make no payment to the Contractor for sales or use tax that is not included in the Contract Price at the time the Agreement is executed by the Owner.

#### **51. MONTHLY ESTIMATES AND RETAINAGE**

On the 20th day of each month or at any other regular time agreed upon by the Owner and Contractor, the Contractor and the Inspector shall prepare and submit to the Owner a monthly estimate for Partial

Payment. The monthly estimate shall cover items of work for which the Contractor is entitled to be paid since the last previous monthly estimate was submitted, including (1) the value of the Work done, (2) major items of equipment or materials delivered to the site of the project to be installed by the Contractor, as substantiated by submitted invoices and as approved by the inspector, and (3) materials incorporated into the Work.

The Owner shall pay to the Contractor all sums due under the monthly estimate less five percent (5%) retainage within 30 days after of the approved monthly estimate by the owner, unless the Owner asserts a right to withhold some or all of the payment under the provisions of the Contract Documents.

The Contractor will be paid for materials delivered to and stored on the job site. Payment will be for actual cost of materials as evidenced by receipted invoices, less five percent (5%) retainage. The Contractor shall make a separate accounting of these materials and shall submit an accounting of them, with four (4) copies, along with the monthly estimate for partial payment.

## **52. PARTIAL PAYMENT NO WAIVER OF RIGHTS**

Partial payments made under this Agreement by the Owner are not evidence of the proper performance of the Agreement by the Contractor either in whole or in part, and no payment made by the Owner shall be construed to be an acceptance of defective or improper work. No act of the Owner or the Engineer, or the representative of either of them, in superintending or directing the Work, no failure to disapprove or reject any material used in the Work, and no extension of time for the Completion of the Work shall be construed as acceptance of the Work either in whole or in part. Acceptance of the Work by the Owner shall occur only upon Final Payment by the Owner.

Before Final Payment is made, the Contractor shall sign and attest to a statement accepting the Final Payment in full satisfaction and settlement of all claims on account of the Work done and materials furnished under the Agreement, and certifying that all claims of others against the Contractor for material provided or labor performed have been paid and satisfied in full.

## **53. FINAL PAYMENT**

After receiving satisfactory evidence from the Contractor that all labor and material bills have been paid and as soon as practicable after the completion of the Work, the Inspector shall prepare a final estimate of the amount of the Work, and the value thereof, and the Owner shall, within 30 days after such final estimate is made, pay to the Contractor the entire sum due after deducting therefrom all previous payments, and all deductions to be retained by the Owner under any of the provisions of the Contract Documents. All prior

estimates and payments shall be subject to correction in the final estimate of payment.

#### **54. STANDARDS FOR COMPUTING PAY ITEMS**

- A. ROCK AND HARDPAN** - The depth of main line trenches, service trenches and force main trenches shall be computed using the actual depth of the rock to the invert of the pipe plus six inches (6"); and the actual length plus a width of thirty-six inches (36") for pipe twelve inches (12") and less in nominal diameter. For pipe between twelve inches (12") in nominal diameter and 36" in nominal diameter, the trench width shall be the outside diameter of the pipe barrel plus twenty-four inches (24") and trench depth shall be based on the depth of rock to the outside barrel of the pipe plus six inches (6").

For pipe thirty-six inches (36") or greater in nominal diameter, the trench width shall be the outside diameter plus thirty-six inches (36") and trench depth shall be the depth of rock to the outside barrel of the pipe plus six inches (6"). Manhole and structure excavation, including the base, shall be at the depth encountered, plus six inches (6"). The horizontal dimensions shall assume a square extending one foot beyond the exterior walls of the structure when forming is not required and two feet when forming is required. No additional payment for rock excavation in trench will be allowed for this assumption.

- B. EARTH** - When payment is to be computed on a volumetric basis, the width and depth of main line trenches, force main trenches and service trenches shall be computed in the same manner as for Rock and Hardpan except that the depth shall be the bottom of the pipe for force mains, and the invert of the pipe for gravity lines. When excavation payments are computed based on depth or on cut increments, measurements shall be from the ground surface of the center line of the trench to the invert of the pipe line.
- C. BEDDING IN ROCK, HARDPAN OR EARTH** - The cost of bedding that is required for pipe that is laid in rock or hardpan or earth shall be included in the unit price for these items and no extra compensation shall be allowed.
- D. CLEARING AND GRUBBING** - The cost of clearing and grubbing shall include removal of all trees, stumps and other vegetation. No extra compensation shall be allowed for removing or disposing of trees, stumps and other vegetation.

- E. FURNISH, INSTALL, EXCAVATE AND BACKFILL FOR (EACH SIZE) PIPE OR APPURTENANCE** - Price per linear foot of water and/or sewer line and price per each appurtenance for material as specified shall include furnishing, installing, excavating, backfilling, and testing the pipe and appurtenance at the depth indicated and no extra compensation shall be allowed for any of these items. Bedding that is required for pipe and appurtenances shall be included in price per linear foot or per each appurtenance where applicable for excavation and backfill and no extra compensation shall be allowed. Depth for payment shall be measured to the invert of the pipe.
- F. FURNISH, INSTALL, EXCAVATE AND BACKFILL FOR SEWER SERVICE CONNECTION** -Price per linear foot of service connection pipe installed shall include an approved plug and marker at the upper end of the service line. The pay length of the connection shall be the horizontal distance from the center line of the main sewer to the upper end of service line. Price per service tee shall be as installed, complete in place. No extra compensation shall be allowed for any of these items.
- G. HAND EXCAVATION** - Price per cubic yard for hand excavation shall be allowed only when specifically authorized, in writing, by the Engineer. Hand excavation shall be classified as excavation with hand tools rather than with excavating machines. Hand excavation will be permitted only when the Engineer believes that it is necessary and will normally be limited to the amount required to protect trees, utility poles or structures that would otherwise be removed during the course of machine excavation. No allowance shall be made for hand excavation performed to locate or protect culverts and underground utilities.
- H. REMOVAL OF UNSTABLE SOIL AND REPLACEMENT WITH SELECT MATERIAL** - Price per cubic yard of select material shall be allowed only when the Engineer directs, in writing, that select material shall be provided. The price for providing select material shall include the cost of removing unsuitable material and replacing it with select material in order to allow for a stable foundation below the pipe line and for the cost of providing select material because the excavated material is unsuitable for proper backfilling of the trench. The cost of transporting surplus excavation from other portions of the project will be compensated only when the haul distance exceeds one thousand feet. Payment for the cost of select material required when pipe is laid in rock or hardpan and for backfill because of the inability to use rock or hardpan from the trench shall be included in the price bid to Furnish, Install, Excavate and Backfill (Each Size) Pipe. No extra compensation shall be allowed for Removal of Unstable Soil and Replacement with Select Material.

- I. STANDARD MANHOLES** - Price shall be determined per vertical foot of standard manhole. The depth shall be the actual depth to the invert of the utility line plus 8" concrete base. No extra payment shall be allowed for bedding when rock excavation is encountered. Price shall include steps, frame and covers.
- J. WATERTIGHT MANHOLES** - Price shall be determined per vertical foot of watertight manhole. The depth shall be the actual depth to the invert of the sewer line plus 8" concrete base. No extra payment shall be allowed for bedding when rock excavation is encountered. Price shall include steps, frame and watertight covers.
- K. DROP CONNECTIONS** - Price shall be determined per vertical foot for each drop connection constructed. The depth shall be the dimension shown in Standard Details.
- L. SEEDING** -
- 1) WOODED AREAS** - Price shall be determined per linear foot of easement including furnishing and spreading seed as required by the specifications.
  - 2) LAWN KEPT AREAS** - Price shall be determined per linear foot of easement including topsoil, seeding, mulch, fertilizer, lime, etc.
- M. STRAW BALES FOR EROSION CONTROL** - Price shall be determined per bale for furnishing, installing and maintaining.
- N. SHEETING AND SHORING ORDERED LEFT IN PLACE** - Price shall be determined per one thousand board feet for furnishing and installing sheeting and shoring ordered left in place, including cutting and bracing. The Contractor shall not be compensated for the cost of placing and removing sheeting or bracing not ordered left in place.
- O. MANHOLE AIR VENT** - Price for each ductile iron manhole air vent shall include pipe, fittings, connection to manhole, excavation and backfill and all necessary appurtenances.
- P. CLASS "B" CONCRETE** - Price shall be determined per cubic yard of concrete used to perform the Work. Price shall include all required excavation, forming and finishing.
- Q. STONE FOR ROAD SHOULDERS** - Price shall be determined per linear foot of pipe line trench, surfaced with approved crusher run stone. Stone shall be placed to a depth of 4 inches, or the same depth as existed prior to construction, whichever is greater.

- R. **ASPHALT OVERLAY** - Price shall be determined per square yard for placing asphalt over entire roadway per VDOT standards.
- S. **PLACING ASPHALT IN TRENCH** - Price shall be determined per linear foot of pipe line trench for replacement of base material.
- T. **RIP RAP** - Price shall be determined per linear foot as measured along center line of the stream that is crossed. Price shall include furnishing and installing rip rap as required by the Contract Documents.
- U. **LOCATE AND MAKE CONNECTION TO EXISTING MANHOLE** - Lump Sum Price shall include all work necessary for making connection to existing manhole and establishing a new flow channel.
- V. **LOCATE AND MAKE CONNECTION TO EXISTING LINE** - Lump Sum Price shall include all work necessary for making connection to existing water lines; including fittings and removing abandoned pipe; and for sewer projects, establishing a new flow channel, etc.
- W. **CASING PIPE - BORE OR TUNNEL** - Price shall be determined per linear foot for furnishing and installing casing pipe by boring or tunnelling, threading carrier pipe, blocking, sealing ends, pits and all other work that is required to complete the installation.
- X. **CASING PIPE - OPEN TRENCH** - Price shall be determined per linear foot for furnishing and installing casing pipe in an open trench, threading carrier pipe, blocking, sealing ends, pits and all other work that is required to complete the installation. Price shall include excavation and backfill.
- Y. **MOBILIZATION** - Lump sum price shall include all work necessary to mobilize, demobilize and remobilize as necessary to perform work in accordance with the project plans and specifications.

## **55. RIGHT TO AUDIT PROVISION**

Contractor's records, which shall include but not be limited to accounting records, written policies and procedures, subcontract files (including proposals of successful and unsuccessful bidders), original estimates, estimating worksheets, correspondence, change order files (including documentation covering negotiated settlements), and any other supporting evidence necessary to substantiate charges related to the Agreement (all the foregoing hereinafter referred to as "records")



shall be open to inspection and subject to audit and/or reproduction, during normal working hours, by Owner's agent or its authorized representative to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims submitted by the Contractor or any of his payees pursuant to the Contract Documents. The records subject to examination shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with the Agreement.

For the purpose of such audits, inspections, examinations and evaluations, the Owner's agent or authorized representative shall have access to the records from the effective date of the Agreement, for the duration of the Work, and until two (2) years after the date of Final Payment by Owner to Contractor pursuant to the Contract Documents.

Owner's agent or its authorized representative shall have access to the Contractor's facilities, shall have access to all necessary records, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this article. Owner's agent or its authorized representative shall give Contractor reasonable advance notice of intended audits.

Contractor shall require all subcontractors, insurance agents, and materials suppliers (collectively referred to as "payees") to comply with the provisions of this article by insertion of the requirements hereof in a written contract agreement between Contractor and payee. Failure to obtain such written contracts which include such provisions shall be reason to exclude some or all of the related payees' costs from amounts payable to the Contractor pursuant to the Agreement.

If an audit inspection or examination performed pursuant to this paragraph, discloses overcharges of any nature by the Contractor to the Owner in excess of five percent (50) of the total billings made by the Contractors pursuant to the Contract Documents, the actual cost of the Owner's audit shall be paid by the Contractor.

#### **56. WARRANTY PERIOD**

The Contractor guarantees the quality and workmanship of the Work beginning on the date of Final Acceptance. The Warranty Period shall be one year, except that the Warranty Period for road work shall be three years or the period established by the Virginia Department of Transportation's latest requirements, whichever is longer.

**57. NOTIFICATION TO PROPERTY OWNERS**

Contractor shall properly notify all property owners two (2) weeks prior to the start of any construction (including land clearing). Notification shall be in the form of a letter similar to the "sample" reflected in the County's latest Water and Sewer Specifications. (See sample "NOTIFICATION" letter - Page NOT-1).

**58. DRUG FREE WORKPLACE**

During the performance of this contract, the contractor agrees to:

- A. Provide a drug-free workplace for the contractor's employees
- B. Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- C. State in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace.
- D. Include the provisions of the foregoing clauses in every subcontract or purchase order over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "drug-free workplace" means as site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

**59. AWARD NOTIFICATION**

For information pertaining to the award of this procurement transaction, bidders may access public notification electronically at [www.co.chesterfield.va.us/ManagementServices/Purchasing/purchase.asp](http://www.co.chesterfield.va.us/ManagementServices/Purchasing/purchase.asp)

**60. UNBALANCED BIDS**

The County reserves the right to negotiate unbalanced unit prices with the lowest bidder prior to award and to award to the next low bidder if a reasonable fee is not achieved.

**61. ENVIRONMENTAL MANAGEMENT**

Vendor/Supplier/Contractor will be responsible for complying with Section 8 and all federal, state and local environmental regulations relating to transportation, handling, storage, spillage and any other aspect of providing the services specified herein, as applicable.

**62. FAITH-BASED ORGANIZATIONS**

Chesterfield County does not discriminate against faith-based organizations in accordance with the Code of Virginia, Section 2.2-4343.1.

**63. WATER LINE TIE-INS**

All water line tie-ins to the existing distribution system including vertical and horizontal relocations shall be coordinated with the Operations and Maintenance Section of the Utilities Department. Tie-ins shall be scheduled Monday thru Thursday from 9:00 a.m. to 4:00 p.m. Tie-ins may be required outside of this time and/or during nighttime hours.

The County reserves the right to require the Contractor to perform tie-ins outside of the normal working hours detailed above in the interest of public safety or customer service. No claim for additional compensation shall be made by the Contractor when such occasions occur.

Proper preparation including field verification of the plans shall be accomplished to minimize shutdown time and prevent the tie-in from exceeding scheduled shutdown time. Sufficient personnel, equipment and materials shall be on site prior to the water being shut off. Where applicable, excavation and preassembling of fittings shall be performed. If, in the opinion of the inspector, sufficient resources are not available, the tie-in will be cancelled and rescheduled.

Tie-ins to asbestos cement pipe shall be made to rough barrel pipe. Tie-ins to the machined section of asbestos pipe will not be permitted. Where asbestos cement pipe couplings have been removed, the machined end of the pipe shall be removed. Abandonment of cement asbestos pipe shall be per state and federal requirements.

Tie-ins involving fittings shall include provisions for temporary blocking until concrete blocking has cured.

All pipe and fittings used for a tie-in are to be swabbed with a 1% chlorine solution prior to connection.

#### **64. PROCEDURES FOR CLAIMS AND DISPUTES**

A claim is a demand or assertion by the Contractor seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. Claims must be initiated by written notice. The responsibility to substantiate claims shall rest with the Contractor.

Claims by the Contractor must be initiated within 21 days after occurrence of the event giving rise to such claim or within 21 days after the claimant first recognizes the condition giving rise to the claim, whichever is later. Claims must be initiated by written note to the Architect or Engineer and Owner. Submittal of a claim by the Contractor within the time limits prescribed by this paragraph shall be required as a condition precedent to the institution of litigation by the Contractor with respect to the subject matter of that claim.

**AGREEMENT**

**THIS AGREEMENT**, made this \_\_\_ day of , \_\_\_\_\_ 20\_\_\_, by and between **the County of Chesterfield, Virginia**, hereinafter called "OWNER" and \_\_\_\_\_ doing business as \_\_\_\_\_ (an Individual) or (a Partnership) or (a Corporation) hereinafter called "CONTRACTOR".

**WITNESSETH:** That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR shall commence and complete construction of  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. The CONTRACTOR shall furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR shall commence the work required by the CONTRACT DOCUMENTS within Ten (10) calendar days after the date of the NOTICE TO PROCEED. Work shall be substantially complete within \_\_\_\_\_ calendar days unless the period for completion is extended otherwise by the CONTRACTOR DOCUMENTS. Work shall be finally complete and ready for final payment within \_\_\_\_\_ calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR shall perform all of the WORK described in the CONTRACT DOCUMENTS and shall comply with the terms therein for the sum of \$\_\_\_ or as shown in the BID schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:
  - (A) Advertisement
  - (B) Instructions to BIDDERS
  - (C) BID FORM
  - (D) BID BOND
  - (E) Agreement
  - (F) General Conditions
  - (G) Supplemental General Conditions

COUNTY NO. \_\_\_\_\_

Original Contract Price	\$ _____
Previously Approved Change Orders	\$ _____
Current Adjusted Contract Price	\$ _____
The contract price due to this	
Change Order will be (Increased),	
(Decreased) by	\$ _____
The new adjusted contract price	
including this Change Order	\$ _____

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CHANGE TO CONTRACT TIME:  
(Must be completed with all change orders  
even when no change in Contract Time is made.)

Original Contract Time	_____ Days
Previously Approved Change Orders	_____ Days
Current Adjusted Contract Time	_____ Days
The contract time due to this	
Change Order will be (Increased),	
(Decreased) (Unchanged) by	_____ Days
The new adjusted contract time	
including this Change Order will be	_____ Days

-----

This document will become a supplement to the Contract and all provisions will apply hereto.

Requested by	_____	_____
	(Contractor) (Pres. or V-P)	(Date)
Recommended by	_____	_____
	(Engineer)	(Date)
Accepted by	_____	_____
	(Project Manager)	(Date)
Approved by	_____	_____
	(County Administrator)	(Date)

COUNTY NO. \_\_\_\_\_

## **SECTION 8**

### **CONTRACTOR ENVIRONMENTAL ACTIVITIES**

#### **I - GENERAL**

##### **1.01 INTRODUCTION**

- A. The following information is supplied to contractors who perform work on projects for the Chesterfield County Utilities Department. The information presented herein has been developed to comply with the Chesterfield County Environmental Management System (EMS). The intent of this information is to make contractors aware of the EMS and to ensure that they conform to the applicable EMS procedures and instructions.

Contractors shall submit a completed Contractor Environmental Checklist (see Appendix C). The Contractor shall prepare a Contractor Environmental Activity Statement (see Appendix D) and submit it to the Utilities Department. The Statement will be reviewed by the Environmental Management Office before a purchase order is issued.

- B. Conformance with the Environmental Policy and all requirements noted in this document is expected of all Contractors, subcontractors, and their employees. Failure to follow these requirements will be grounds for termination of the contract.
- C. Contractors shall be responsible for compliance with relevant environmental legislation and regulations and for ensuring the compliance of subcontractors.
- D. A copy of the County Environmental Policy (see Appendix E) is attached to this section.

##### **1.02 ENVIRONMENTAL MANAGEMENT BASICS**

- A. Contractors shall not transport hazardous chemicals on-site without having the associated Material Safety Data Sheets (MSDS) for each substance to be used. These materials include, but are not limited to; sealers, adhesives, paints, coatings, fuels, oils, acids, and caustics.
- B. Contractors shall provide adequate control of fugitive dust emissions during all operations and activities.
- C. Contractors shall not discharge anything to drains and/or sewers without the prior approval of the Utilities Department.

- D. Contractors shall provide adequate spill/release prevention for all bulk materials.
- E. Contractors shall immediately notify the Utilities Department of any spills, releases, or other environmental incidents. Contractors shall subsequently submit a completed Environmental Tracking of Spills and Releases form (see Appendix F) to the Utilities Department.
- F. Contractors shall properly label, store, and dispose of all waste materials.
- G. Contractors shall be sensitive to the effects of noise, odor, light, and traffic movement on the local community and implement appropriate remedial actions as required.
- H. The requirements of the Contractor Environmental Activity Statement (see Appendix D) are described in a subsequent section of this document.

### **1.03 WASTE DISPOSAL**

- A. All waste disposal (construction debris, scrap metal, non-hazardous waste, municipal solid waste, etc.) shall be the Contractor's responsibility, unless otherwise noted.
- B. The Contractor shall inform the Utilities Department of all generated hazardous waste streams before a waste is generated and collected on-site. The Contractor shall provide the Utilities Department with manifests for all hazardous wastes.
- C. The Contractor shall inform the Utilities Department of the location of all generated hazardous waste storage areas, maximum quantities, and the container type.
- D. The Contractor shall label all containers with their contents and the responsible Contractor's name and contact information. NO UNLABELED CONTAINERS SHALL BE PERMITTED ON-SITE.
- E. The Contractor shall provide all shipping information and relevant documentation (MSDS, Waste Profiles, Bills of Lading, and inventory) to the Utilities Department upon request.

### **1.04 EQUIPMENT DECOMMISSIONING**

- A. All equipment shall be thoroughly inspected by the Contractor for fluids and other hazardous materials prior to removal.



- B. All fluids and other hazardous materials shall be removed by the Contractor prior to decommissioning of equipment.
- C. The Contractor shall dispose of any waste generated in accordance with the above instructions.

#### **1.05 WATER DISCHARGES**

- A. Discharge of materials to ANY sewer system, other than approved sanitary sewage discharges to the sanitary sewer system is prohibited.
- B. Discharges of ANY material to outside clean drains other than storm water are prohibited.

#### **1.06 MATERIAL STORAGE/SPILLS**

- A. Plans for outside storage of potentially environmentally damaging materials shall be approved by the Utilities Department prior to the commencement of the work. Considerations such as shelter from the elements and containment size shall be addressed.
- B. The Contractor shall provide adequate outside storage areas for chemical materials that are equipped with non-earthed secondary containment in accordance with applicable regulations.
- C. The Contractor shall ensure that all material containers owned or managed by the Contractor are properly labeled in accordance with the OSHA HAZARD COMMUNICATION STANDARD (i.e., contents, primary hazard).
- D. The Contractor shall have MSDS available for all chemical products in use at all times that their employees are working on-site. MSDS will be made available to Utilities personnel, medical personnel, environmental personnel, or other representatives upon request.
- E. The Contractor shall ensure that chemical containers are closed except when in use.
- F. Contractors shall maintain spill kits to contain and clean up small spills generated by their employees or from their materials. Spill kits shall be kept on-site and made easily accessible during an emergency. Disposal of all spill residues shall be in compliance with appropriate environmental regulations.

- G. The Contractor shall immediately report all spills or releases to the Utilities Department. Contractors shall subsequently submit a completed Environmental Tracking of Spills and Releases form (see Appendix F) to the Utilities Department.

#### **1.07 STORM WATER MANAGEMENT**

- A. No process materials or any other sources of water pollution shall be commingled with storm water.
- B. Solids shall be prevented from entering sewer drains. Roadways and outside areas shall be kept clean at all times.
- C. It is the Contractor's responsibility to install storm water control measures such as silt fences, straw bales, etc. to control the solids entering storm drains from erosion or other processes as necessary.
- D. Vehicle maintenance shall not be performed near storm drains.

#### **1.08 PCB'S**

- A. The Contractor shall notify the Utilities Department if a material is suspected to have PCB contamination.
- B. All PCB removals shall be coordinated by the Environmental Management Office.
- C. Any lighting ballast that does not state that it is a non-PCB containing ballast shall be disposed of as PCB containing.

#### **1.09 ASBESTOS**

- A. The Contractor shall stop work and notify the Utilities Department immediately if he encounters previously unidentified asbestos materials.
- B. All asbestos removal and disposal activities shall be conducted in accordance with procedures approved by the Chesterfield County's Environmental Program Manager.

#### **1.10 LEAD**

- A. The Contractor shall stop work and notify the Utilities Department immediately if he encounters previously unidentified lead materials.

- B. All lead removal and disposal activities shall be conducted in accordance with procedures approved by the Environmental Program Manager.

#### **1.11 CFC'S**

- A. The Contractor shall provide copies of employee training certificates to the Utilities Department upon request.
- B. Intentional venting of CFC's to the atmosphere is prohibited.

#### **1.12 SITE CONDITIONS**

- A. The Contractor shall keep the site clean and orderly. Cleanup of trash, etc. generated by the Contractor's activities or the activities of employees shall be the Contractor's responsibility.

VDOT, CHESTERFIELD RESIDENCY - APRIL 1, 2004  
SUBDIVISION AND SITE CONSTRUCTION PLAN  
GENERAL NOTES

1. All materials and construction within the public right of way or for roadways intended to be public rights of way shall be in accordance with current Virginia Department of Transportation specifications and standards.
2. Land Use Permit (CE-7) must be obtained from the Virginia Department of Transportation prior to beginning any construction within the existing state maintained right of way (including access).
3. VDOT is to receive written notification 48 hours prior to commencing with initial construction activities.
4. Prior to any construction, the contractor shall consult the engineer and verify the approval of the plans by all applicable federal, state and local agencies.
5. Preliminary design of the pavement structure for all subdivision streets shall be in accordance with the current edition of The Pavement Design Guide for Subdivision and Secondary Roads in Virginia. The completed design worksheet appendix IV shall be included with the initial plan submittal for each proposed pavement section utilizing the predicted soil support value shown in appendix I of The Pavement Design Guide.
6. The contractor shall verify the elevations of all points of connection or proposed work to existing curbs, sanitary lines, water lines, etc., prior to construction.
7. Upon discovery of soils that are unsuitable for foundations, subgrades, or other roadway construction purposes, the contractor shall immediately contact a geotechnical engineer and VDOT. These areas shall be excavated below plan grade as directed by a geotechnical engineer, backfilled with suitable material and compacted in accordance with current VDOT specifications.
8. All storm sewer design and construction to be in accordance with VDOT I & I LD-94 (D) 121.13.

9. All storm sewer pipes shall be reinforced tongue and groove concrete pipe in accordance with ASTM-C-76. Pipe within the right of way shall be a minimum CL-III or greater in accordance with current VDOT standards and specifications.
10. All pre-cast units shall be VDOT approved. Certification and VDOT stamp will be required on all units.
11. All concrete shall be class A3-AE (air entrained 3,000 PSI).
12. All entrances are to be designed and constructed in accordance with current VDOT standards. Residential lot access shall be provided per the following criteria:
  - All driveway entrance culverts are to be a minimum of 15" diameter x 20' long pipe and shall conform to PE-1 private entrance standards unless otherwise directed by the Resident Engineer. No entrance culverts are to be installed within five (5) feet of a property corner.
  - VDOT standard CG-9D entrances shall be installed in curb and gutter neighborhoods.

Inspections to be performed by VDOT shall be requested in writing, 48 hours prior to entrance installation.

13. The developer is responsible for furnishing and installing stop signs at street intersections, as well as, all signs deemed pertinent to the proposed development. The contractor shall contact the Richmond District Traffic Engineering office at 804-542-6000 to establish locations for any signage requirements as deemed necessary by VDOT inspector. Installation of said signs shall occur at no expense to the state and prior to state acceptance of roadway(s).
14. Design changes, specified materials changes and/or field changes from the approved plans need to be re-submitted to VDOT prior to proceeding with the work. A letter of explanation shall accompany the revised plans and/or drainage calculations, which must be submitted, to VDOT for review and approval by the Resident Engineer.
15. Contractor shall verify location and elevation of all underground utilities shown on plans in areas of construction prior to starting work. Contact engineer immediately if location or elevation is different from that shown on plan. If there appears to be a conflict, and/or upon discovery of any utility not shown on this plan, call Miss Utility of Central Virginia at 1-800-552-7001. The developer shall be responsible for the relocation of any utility within existing and/or proposed right of way required by the development.

16. All streetlights shall be located a minimum of 9.5' from the edge of pavement on curb and gutter streets and/or located a minimum of 5.5' behind the ditch line on open ditch streets.
17. Generally, paved roadside ditches are to be specified when velocities exceed current VDOT design criteria or when ditch slopes are less than 0.75%. Where ditch slopes exceed 5.0%, the developer may choose to implement erosion and sediment control measures in an attempt to achieve channel stabilization while acknowledging that additional paved ditch linings may be required prior to acceptance of the roads into the secondary system of state highways. Paved roadside ditches shall conform to VDOT-PG-2A standards and specifications.
18. VDOT approval of construction plans does not preclude the right to require additional facilities as deemed necessary for acceptance of the roads into the VDOT Secondary Road System.
19. VDOT approval of these plans will expire five (5) years from the date of approval.
20. VDOT shall have performed the required field inspection (proof roll) prior to placement of the aggregate base course(s). Contact VDOT, in writing, for subgrade inspection 48 hours prior to scheduling placement of aggregate base course(s).
21. A prime coat seal between the aggregate base and bituminous concrete will be required at a rate of 0.30 gallons per square yard (REC-250 Prime Coat) per VDOT standards and specifications.
22. The scheduling of aggregate base installation and subsequent paving activities shall accommodate forecast weather conditions per Section 315 of The Road and Bridge Specifications.
23. VDOT shall have approved the aggregate base course(s) for depth, template and performed the required field inspection (proof roll) prior to placement of any surface course(s). Contact VDOT, in writing, for inspection of the aggregate base course(s) 48 hours prior to application of the surface course(s).
24. An actual copy of the complete CBR report is to be submitted to VDOT in conjunction with final pavement designs. All pavement design recommendations shall be performed in accordance with the current edition of The Pavement Design Guide for Subdivision and Secondary Roads in Virginia.
25. A licensed geotechnical engineer shall ascertain cause and certify recommended method of repair for all pavement structural failures prior to state acceptance.

26. All vegetation and organic material is to be removed from the right of way limits prior to conditioning of the subgrade.
27. All materials shall be in accordance with the VDOT Road and Bridge Specifications and Road and Bridge Standards.
28. Dry gutter is not allowed in VDOT right of way.
29. The developer will be responsible for the design costs of any traffic signal installation and/or modification under an account receivable with VDOT.
30. The necessity and locations for additional VDOT standard underdrains to be determined at time of subgrade inspection.
31. Approval of a detailed construction sequencing/maintenance of traffic narrative for the work zone is a prerequisite for issuance of a Land Use Permit allowing access to and construction within VDOT maintained right-of-way.
32. VDOT shall be provided documentation by a licensed geotechnical engineer, certifying that all in-place pavements meet or exceed the approved pavement design thickness prior to state acceptance. The certifying documentation shall conform to VDOT specifications and the approved plans.
33. The establishment of a temporary vegetative cover is required on all denuded areas that are not to be fine graded for periods longer than 30 days.
34. No structure shall be constructed on state maintained rights of way unless said structures are shown on road construction plans approved by VDOT or covered by a VDOT Land Use Permit (or by a letter of intent from the Resident Engineer to issue said permit at the time of state acceptance).
35. The developer is responsible for contacting the Richmond District Traffic Engineering section at 804-524-6000 for guardrail location and placement requirements.
36. A preconstruction meeting is required prior to undertaking any roadway construction activities. Developer or designee will contact Chesterfield Residency, in writing, five working days in advance of anticipated construction start to establish date, time and location for preconstruction meeting. The primary function of the construction meeting will be to identify geotechnical parameters of proposed construction activities.

**CONTRACTOR ENVIRONMENTAL CHECKLIST****Chesterfield County**

Facility Name:

Period Ending:

Person Resp	Prepared by	Reviewed by	Approved by

Revision no.

The following information is to be filled out by a company representative for the contracted work or service to be performed.

Contact person:
Position:
Company name:
Address:
Phone:
Mobile:
Fax:
Email:

Will the contracted work or service include any of the following activities?

<b>Combustion sources</b>	<b>Yes/No</b>
Air heating and supply	
Mobile transportation, such as forklift or carts	
Construction activities	
Excavation or grading	
Drilling or blasting	
Rock crushing	
Demolition	
Welding or soldering	
Painting	
Asphalt paving	
Use or storage of chemicals or fuels	
Transfer of bulk materials	
Disposal of chemical wastes	
Disposal of general wastes	

<b>Building maintenance activities</b>	<b>Yes/No</b>
Architectural paint removal	
Architectural painting	
Hydroblasting	
Sandblasting	
Surface preparation/treatments, such as floors and roof repair	
Purging or repair of distribution lines such as those for fuel, oil, or solvents	
Use of chemicals, solvents, caustics, acids, oils, etc.	
Use of herbicides, pesticides, or insecticides	



<b>Business or work-related activities</b>	<b>Yes / No</b>
Use or receipt of chemical materials (other than janitorial or cleaning materials.)	
Generation and disposal of chemical wastes	
Generation of sealers, adhesives, coatings, or paints	
Welding, soldering, brazing or similar activities	
Use of caustics or acids	
Use of combustion gases	
Please list fuels used:	
Comments	
Laboratory installation	
Medical waste	
Discharge to storm drains	

For questions or additional information regarding the use of this form, refer to the Contractor environmental management procedure, or contact the ENVIRONMENTAL OFFICE at TELEPHONE NUMBER.

Contractor representative name:	Position:
Contractor representative signature:	Date:

To be completed by the ENVIRONMENTAL OFFICE after a review is conducted.

A review of the above activities determined that:

<input type="checkbox"/>	This Contractor Environmental Checklist is approved, no further action is needed.
<input type="checkbox"/>	The Contractor Environmental Activity Statement will be issued, and a response must be received by:

Environmental administrator name:	Position:
Environmental administrator signature:	Date:

**CONTRACTOR ENVIRONMENTAL ACTIVITY STATEMENT****Chesterfield County**

Facility Name:

Period Ending:

Person Resp	Prepared by	Reviewed by	Approved by

Revision no.

**This environmental activities statement must be completed, signed and returned to the ENVIRONMENTAL OFFICE before the contracted work commences, or in a reasonable and agreed-upon time frame.**

*The following information is to be filled out by a company representative for the contracted work or service to be performed.*

Contact person:	
Position:	
Company name:	
<b>Activities or work description</b>	
Briefly describe the activities or work to be undertaken by your company at the CITY/FACILITY site.	
<b>Air emissions</b>	
Will the activities or work you perform produce or cause the release of any air emissions?	
List the air emissions and methods for preventing impacts to the environment.	
<b>Water discharges</b>	
Will the activities or work you perform produce or cause the release of any wastewater?	
How is wastewater handled?	

**Materials**

What materials (chemicals, oils, etc.) and/or equipment will you be handling or bringing on site to perform the contracted work?

**Training**

Your employees should be trained in the proper handling of materials and equipment and in the proper response to incidents involving these materials. Describe the training your employees receive.

**Waste generation**

Will the activities or work you perform result the generation of any wastes?

List the amounts, types of wastes expected and the proposed disposal methods.

Are any wastes generated to be recycled?

List the recyclables, where and how they will be recycled.

**Energy**

Will the activities or work you perform consume energy (electricity, compressed air, natural gas, steam, etc.)?

Explain what types of energy will be consumed, and how you will minimize consumption.

<b>Other</b>	
Are there any other ways in which your activities or work affect and/or protect the environment?	
Please describe below.	

### Information

Company name:	
<b>Contact</b>	
Name:	Position:
Address:	
Phone:	Mobile:
Fax:	E-mail:
<b>Secondary contact</b>	
Name:	Phone:

## Environmental agreement

*For questions or additional information regarding the use of this form, refer to the Contractor Environmental Management Procedure, or contact the CITY/FACILITY at TELEPHONE NUMBER.*

I acknowledge receipt and concurrence with the Contractor Environmental Activity Briefing Package. My company and subcontractors that I may bring to the CITY/FACILITY site will abide by all such environmental programs and policies whenever on the property. My company will train all personnel contracting on the property about the briefing package. Sign-in sheets will be maintained as evidence that the training has been conducted and will be made available to the ENVIRONMENTAL OFFICE upon request.

*Changes to the environmental management system will be communicated to my company by CITY/FACILITY. Retraining of affected individuals will be conducted as appropriate.*

Print name: Name	Position:
Contractor representative signature:	Date:

*To be completed by the CITY/FACILITY after a review is conducted.*

A review of the above activities determined that:

<input type="checkbox"/>	COMPLETE - approved, no further action is needed.
<input type="checkbox"/>	NOT COMPLETE - a response must be received by:

Environmental administrator name:	Position:
Environmental administrator signature:	Date:

**APPENDIX E**

**ENVIRONMENTAL MANAGEMENT POLICY**

**Chesterfield County**

Facility name:

Period ending:

Person Resp	Prepared by	Reviewed by	Approved by

Revision no.

**Company environmental policy**

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**Chesterfield County**

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The County of Chesterfield is committed to improving countywide environmental practices, and to be responsible protectors of the environment in conformance with its mission of providing a "First Choice Community through Excellence In Public Service." In support of this commitment, the county will:

1. Meet or exceed all applicable environmental laws, regulations, and municipal standards.
2. Educate, train, and recognize employees for enhanced environmental performance and increased awareness of environmental issues.
3. Practice the principles of pollution prevention.
4. Respond to environmental incidents at county properties and facilities quickly and effectively.
5. Continually improve our environmental management system and make it an integral part of our standard business practices.
6. Develop and periodically review environmental objectives and targets as part of maintaining the county's environmental management system.
7. Promote the education of all citizens in the awareness of environmental issues and pollution prevention.
8. Encourage the use of sound environmental principles and practices by all county contractors vendors, local businesses, and industries.

This commitment to protect the environment is required of all county employees at all levels.

---

County Administrator

Date

**APPENDIX F**  
**TRACKING OF ENVIRONMENTAL SPILLS AND RELEASES**

**Chesterfield County**

Facility name:

Period ending:

Person Resp	Prepared by	Reviewed by	Approved by

Revision no.

---

Contractors will immediately report all spills or releases of materials other than incidental ones to the CITY/FACILITY OFFICE at TELEPHONE NUMBER. Contractors will follow up by completing, signing and returning this form to the CITY/FACILITY OFFICE in a reasonable and agreed-upon time frame.

The following information is to be filled out by the contractor for the purpose of tracking environmental spills and releases. This information will be reviewed and entered into the CITY'S ENVIRONMENTAL MANAGEMENT INFORMATION SYSTEM.

Please fill in all areas, using **Not Applicable** or **N/A** as necessary to complete the form. Please print.

---

**Contractor information:**

Contact person:	
Position:	
Company name:	
Address:	
Phone:	
Mobile:	
Fax:	
Email:	

---

**Incident description**

Incident:	
-----------	--

---

**Spills**

**Spill/Release**

Spill date:		Spill time:	
Chemical:		Quantity spilled:	
Agency notified:		Date notified:	
Date CITY/FACILITY notified:			
Clean-up method:			
Disposal method:			

---

**Waste disposal contractor**

Company name:	
Contact person:	
Position:	
Phone:	
Secondary phone:	
Fax:	
Email:	
Contractor expertise:	

*For questions or additional information regarding this form, contact the CITY/FACILITY at TELEPHONE NUMBER.*

Contractor name:	Position:
Contractor signature:	Date:

*To be completed by the CITY/FACILITY after a review is conducted.*

A review of the above incident determined that the spill/release is:

	NOT REPORTABLE - no further action is needed.
	REPORTABLE - contacted LEGAL COUNSEL/CONSULTANT.
	Input spill/release information into CITY/FACILITY'S environmental management information system.

Executive manager name:	Date:
Executive manager signature:	



# **PART IV**

**THE FOLLOWING PAGES ARE TO BE**

**INSERTED INTO PART IV**

**OF THE**

**CHESTERFIELD COUNTY WATER AND SEWER  
SPECIFICATIONS AND PROCEDURES**

**PART IV**  
**DEVELOPER**  
**WATER AND SEWER PROJECT**  
**CONSTRUCTION SPECIFICATIONS**  
**CHESTERFIELD COUNTY, VIRGINIA**

**INSTRUCTIONS for viewing and/or printing this document:**

PART IV is divided into three (3) sections – GENERAL CONDITIONS, TECHNICAL SPECIFICATIONS and APPENDICES. Each section has been set up with bookmarks making it more convenient to locate various topics within the document. After pulling up the section you wish to view or print, click on “BOOKMARKS” in the left hand margin of the document. (When printing the document, please remember to print this table of contents and include it in your book.)

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VDOT, CHESTERFIELD RESIDENCY - APRIL 1, 2004  
SUBDIVISION AND SITE CONSTRUCTION PLAN  
GENERAL NOTES

37. All materials and construction within the public right of way or for roadways intended to be public rights of way shall be in accordance with current Virginia Department of Transportation specifications and standards.
38. Land Use Permit (CE-7) must be obtained from the Virginia Department of Transportation prior to beginning any construction within the existing state maintained right of way (including access).
39. VDOT is to receive written notification 48 hours prior to commencing with initial construction activities.
40. Prior to any construction, the contractor shall consult the engineer and verify the approval of the plans by all applicable federal, state and local agencies.
41. Preliminary design of the pavement structure for all subdivision streets shall be in accordance with the current edition of The Pavement Design Guide for Subdivision and Secondary Roads in Virginia. The completed design worksheet appendix IV shall be included with the initial plan submittal for each proposed pavement section utilizing the predicted soil support value shown in appendix I of The Pavement Design Guide.
42. The contractor shall verify the elevations of all points of connection or proposed work to existing curbs, sanitary lines, water lines, etc., prior to construction.
43. Upon discovery of soils that are unsuitable for foundations, subgrades, or other roadway construction purposes, the contractor shall immediately contact a geotechnical engineer and VDOT. These areas shall be excavated below plan grade as directed by a geotechnical engineer, backfilled with suitable material and compacted in accordance with current VDOT specifications.
44. All storm sewer design and construction to be in accordance with VDOT I & I LD-94 (D) 121.13.

45. All storm sewer pipes shall be reinforced tongue and groove concrete pipe in accordance with ASTM-C-76. Pipe within the right of way shall be a minimum CL-III or greater in accordance with current VDOT standards and specifications.
46. All pre-cast units shall be VDOT approved. Certification and VDOT stamp will be required on all units.
47. All concrete shall be class A3-AE (air entrained 3,000 PSI).
48. All entrances are to be designed and constructed in accordance with current VDOT standards. Residential lot access shall be provided per the following criteria:
  - All driveway entrance culverts are to be a minimum of 15" diameter x 20' long pipe and shall conform to PE-1 private entrance standards unless otherwise directed by the Resident Engineer. No entrance culverts are to be installed within five (5) feet of a property corner.
  - VDOT standard CG-9D entrances shall be installed in curb and gutter neighborhoods.

Inspections to be performed by VDOT shall be requested in writing, 48 hours prior to entrance installation.

49. The developer is responsible for furnishing and installing stop signs at street intersections, as well as, all signs deemed pertinent to the proposed development. The contractor shall contact the Richmond District Traffic Engineering office at 804-542-6000 to establish locations for any signage requirements as deemed necessary by VDOT inspector. Installation of said signs shall occur at no expense to the state and prior to state acceptance of roadway(s).
50. Design changes, specified materials changes and/or field changes from the approved plans need to be re-submitted to VDOT prior to proceeding with the work. A letter of explanation shall accompany the revised plans and/or drainage calculations, which must be submitted, to VDOT for review and approval by the Resident Engineer.
51. Contractor shall verify location and elevation of all underground utilities shown on plans in areas of construction prior to starting work. Contact engineer immediately if location or elevation is different from that shown on plan. If there appears to be a conflict, and/or upon discovery of any utility not shown on this plan, call Miss Utility of Central Virginia at 1-800-552-7001. The developer shall be responsible for the relocation of any utility within existing and/or proposed right of way required by the development.

52. All streetlights shall be located a minimum of 9.5' from the edge of pavement on curb and gutter streets and/or located a minimum of 5.5' behind the ditch line on open ditch streets.
53. Generally, paved roadside ditches are to be specified when velocities exceed current VDOT design criteria or when ditch slopes are less than 0.75%. Where ditch slopes exceed 5.0%, the developer may choose to implement erosion and sediment control measures in an attempt to achieve channel stabilization while acknowledging that additional paved ditch linings may be required prior to acceptance of the roads into the secondary system of state highways. Paved roadside ditches shall conform to VDOT-PG-2A standards and specifications.
54. VDOT approval of construction plans does not preclude the right to require additional facilities as deemed necessary for acceptance of the roads into the VDOT Secondary Road System.
55. VDOT approval of these plans will expire five (5) years from the date of approval.
56. VDOT shall have performed the required field inspection (proof roll) prior to placement of the aggregate base course(s). Contact VDOT, in writing, for subgrade inspection 48 hours prior to scheduling placement of aggregate base course(s).
57. A prime coat seal between the aggregate base and bituminous concrete will be required at a rate of 0.30 gallons per square yard (REC-250 Prime Coat) per VDOT standards and specifications.
58. The scheduling of aggregate base installation and subsequent paving activities shall accommodate forecast weather conditions per Section 315 of The Road and Bridge Specifications.
59. VDOT shall have approved the aggregate base course(s) for depth, template and performed the required field inspection (proof roll) prior to placement of any surface course(s). Contact VDOT, in writing, for inspection of the aggregate base course(s) 48 hours prior to application of the surface course(s).
60. An actual copy of the complete CBR report is to be submitted to VDOT in conjunction with final pavement designs. All pavement design recommendations shall be performed in accordance with the current edition of The Pavement Design Guide for Subdivision and Secondary Roads in Virginia.
61. A licensed geotechnical engineer shall ascertain cause and certify recommended method of repair for all pavement structural failures prior to state acceptance.

62. All vegetation and organic material is to be removed from the right of way limits prior to conditioning of the subgrade.
63. All materials shall be in accordance with the VDOT Road and Bridge Specifications and Road and Bridge Standards.
64. Dry gutter is not allowed in VDOT right of way.
65. The developer will be responsible for the design costs of any traffic signal installation and/or modification under an account receivable with VDOT.
66. The necessity and locations for additional VDOT standard underdrains to be determined at time of subgrade inspection.
67. Approval of a detailed construction sequencing/maintenance of traffic narrative for the work zone is a prerequisite for issuance of a Land Use Permit allowing access to and construction within VDOT maintained right-of-way.
68. VDOT shall be provided documentation by a licensed geotechnical engineer, certifying that all in-place pavements meet or exceed the approved pavement design thickness prior to state acceptance. The certifying documentation shall conform to VDOT specifications and the approved plans.
69. The establishment of a temporary vegetative cover is required on all denuded areas that are not to be fine graded for periods longer than 30 days.
70. No structure shall be constructed on state maintained rights of way unless said structures are shown on road construction plans approved by VDOT or covered by a VDOT Land Use Permit (or by a letter of intent from the Resident Engineer to issue said permit at the time of state acceptance).
71. The developer is responsible for contacting the Richmond District Traffic Engineering section at 804-524-6000 for guardrail location and placement requirements.
72. A preconstruction meeting is required prior to undertaking any roadway construction activities. Developer or designee will contact Chesterfield Residency, in writing, five working days in advance of anticipated construction start to establish date, time and location for preconstruction meeting. The primary function of the construction meeting will be to identify geotechnical parameters of proposed construction activities.



# **PART V**

**THE FOLLOWING PAGES ARE TO BE**

**INSERTED INTO PART V**

**OF THE**

**CHESTERFIELD COUNTY WATER AND SEWER  
SPECIFICATIONS AND PROCEDURES**

## PART V

### APPROVED MATERIALS AND MANUFACTURERS LIST AND MATERIAL SPECIFICATIONS CHESTEFIELD COUNTY, VIRGINIA

#### INSTRUCTIONS for viewing and/or printing this document:

Click on PART V above to view or print this portion of the specifications. Each section has been set up with bookmarks making it more convenient to locate various topics within the document. After pulling up the section you wish to view or print, click on “BOOKMARKS” in the left hand margin of the document. (When printing the document, please remember to print this table of contents and include it in your book.)

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a. Ford

- 1) V71-7W-22-33
- 2) V71-7W-44-33G  
(with compression connections inlet and outlet  
for copper pipe)

b. McDonald

- 1) 29-107WXCC33
- 2) 29-107WXTT33  
(with compression connections inlet and outlet  
for copper pipe)

c. Mueller

- 1) H-1434
- 2) H-1470-5

**Note:** County requires manufacturer to supply these connections "completely factory assembled" and tightened to proper torque.

d. Hays (by Cambridge Brass)

- 1) Model # 6020-207H3H3V0

2. For 1" Meters:

Commercial - Domestic use by Businesses, Doctors and  
Dentists Etc.

1" x 12" Riser Meter Yoke with two lockwing, ball or plug  
type angle stop on inlet and outlet, saddle nuts, copper  
tube flare or compression inlet and outlet with ball valve  
bypass.

a. Ford

- 1) VV74-12W-22-44 w/ball valve bypass
- 2) VVB-74-12W-22-44 w/plug valve bypass
- 3) VV74-12W-44-44G  
(with compression connections inlet and outlet  
for copper pipe)

b. McDonald

- 1) 29B412WWCC443
- 2) 29B412WTTT443  
(with compression connections inlet and outlet  
for copper pipe)

All Other Users i.e. for Irrigation, Residential, Etc.

1" x 12" Riser Meter Yoke with 1 lockwing ball or plug type angle stop on inlet only, saddle nuts, copper tube flare inlet and outlet. No bypass.

a. Ford

1) V74-12W-22-44

2) V74-12W-44-44G

(with compression connections inlet and outlet for copper pipe)

3. For 1½" and 2" Meters (Businesses, etc. with bypass):

\*a. Ford - for 1½" Meter - VBB76-7B-11-66

and for 2" Meter - VBB77-8B-11-77

\*b. Mueller (for both) - H-1423

\*c. A.Y. McDonald - Model 20A609 WWFF 665 for 1½" meter,  
Model 20A709 WWFF 775 for 2" meter

For 1½" and 2" Meters (residential and irrigation):

\*a. Ford - for 1½" Meter - VBB76-7-11-66 and

for 2" Meter - VBB77-8-11-77

\*b. A.Y. McDonald - for 1½" Meter - 20-609 WWFF 660

for 2" Meter - 20-709 WWFF 770

\*c. Mueller (for both 1½" and 2") - #1422-00

\*These products are acceptable provided manufacturer makes the necessary modifications to comply with the County's materials specifications for 1½" and 2" water meter setters.

**E. Corporation Stops - Plug Type only for ¾" and 1";  
Plug Type or Ball Valves for 1½" and 2"**

(¾" thru 2" with "cc" thread inlet)

1. Mueller

a. H-15000

b. H-15008 (¾" and 1" corp stop with compression  
outlet for copper) or

H-15071 (¾" and 1" connector only to convert a  
normal H-15000 corp stop to compression, to  
avoid using special tapping machine adapters)

3.    **(M.J. Steel Sleeve)**

- a.    JCM 414 Mechanical Joint

4.    **(M.J. Cast/Ductile Iron Sleeve)**

- a.    Mueller (H-615 for 4"-24" on Ductile Pipe and H-619 for 4"-12" C/A Pipe)
- b.    Clow (F-5205)
- c.    American Flow Control - (Model 2800-A for A/C pipe; Model 2800-C for 4"-12" D.I. and PVC pipes; Model 1004 for PVC pipe and 16" and larger D.I. pipe)
- d.    U. S. Pipe D.I. T-9 MJ Sleeve

**H. Resilient Seated Wedge Tapping Valves**

- 1.    American Flow Series 500 Resilient Wedge Valve (for 6"-12" only)
- 2.    Mueller T-2360 Resilient Wedge Valve (for 6"-12" only)
- 3.    American Flow Control - Series 2500 (for 16"-30" only)
- 4.    Kennedy Model #4950 (for 4" and 24" only)
- 5.    Clow Model F6114 (for 16" and 20" only)

**I. Fittings** (Bends, Crosses, Tees and Grade Lok Offset Glands)  
Ductile Iron only

- 1.    D.I. Compact AWWA C153 or D.I./C.I. AWWA C110
- 2.    D.I. Special Coated Compact Fittings AWWA 153

**Couplings** (For pipe sizes 12" and smaller)

- 1.    Cast Couplings (transition or straight)
  - a.    Romac 501 series (long sleeve coupling)
  - b.    Ford #FC2A (long sleeve coupling)
  - c.    Smith Blair (Rockwell) #442 (long sleeve coupling)



- d. Power Seal Model # 3501 (long barrel coupling)
- e. Maxi Fit (long sleeve coupling)
- 2. Cast D.I. Couplings
  - a. FEHR

**J. Air Release or Combination Air Release and Vacuum Valves**

(Engineer is responsible for specifying the appropriate type for its designated use)

- 1. Clow 5401-E (for 2" inlet with small orifice)
- 2. Clow 5402-A (for 1" inlet and 1" orifice)
- 3. APCO (Product Bulletin No. 600 and/or 601)
- 4. G. A. Industries Type 1 GH4-150 Type 4 GH 7-K
- 5. Valmatic
- 6. Cla Val (Models 34, 35 & 36)

**K. Blow Off Valves**

- 1. 2" Bronze Gate Valve  
(open to most manufacturers, i.e., Grinell, Epsco, etc.)

**L. Line Stopping Valves**

- 1. Hydra-Stop

**M. Water Meter Boxes/Vaults**

- 1. Precast Concrete Box:
  - a. Lyttle Service Co. LLC T/A Stamie E. Lyttle Co., Inc.  
(used with 1", 1½" or 2" water meters and assemblies)
  - b. Clear Flow Model CFLD6060 (for 3" and 4" water meters and assemblies)
  - c. M&B - Model #MB1500BF/WM (for 3" and 4" water meters and assemblies)

6. Cascade - Styles CNS2 (for 12" and smaller pipe), CBS2 (for 12" and smaller pipe), and CDSLDD (large diameter saddles for 16" and larger pipe)
7. Mueller - Models DB2S & DE2S (with double straps for 2"-12")

**Q. Pipe Restraints (must be UL Listed and FM Approved)**

1. For PVC Pipe (Sizes up to 12")
  - a. Megalug Series 2000 PV (PVC Pipe - MJ Fittings)  
Megalug Series 1500 (PVC Bell and Spigot Joints)
  - b. Romac Style 611 (PVC Bell and Spigot Joints)
  - c. Uni-Flange Series 1390-C (PVC Bell and Spigot Joints)  
Uni-Flange Series 1500 (PVC Pipe - MJ Fittings)
  - d. STARGRIP Series 3600 (PVC Pipe - MJ Fittings)
  - e. AquaGrip Intergral Restraint System for use on the Centurion Fire Hydrants and Mueller RS Valves
  - f. SIGMA One-Lok Model SLC
2. For Ductile Iron Pipe -
  - a. Megalug 1100 Series (MJ Fittings) All Sizes
  - b. Uni-Flange Series 1400 Block Buster Wedge Action Retainer Glands (MJ Fittings) Sizes 4"-24"
  - c. Uni-Flange Series 1390-C (Bell and Spigot Joints) Sizes 6"-16"
  - d. STARGRIP Series 3000 (MJ Fittings) Sizes 4"-24"  
STARGRIP Series 3600 (MJ Fittings) Sizes 4"-12"
  - e. RomaGrip Sizes 4"-12"
  - f. SIGMA One-Lok Model SLD (MJ Fittings) Sizes 4"-36"

Febco	805 YD	3"	-	10"
	806 YD	3"	-	10"
	850	2½"	-	8"
	856	2½"	-	8"
	870 (V)	2½"	-	10"
	876 (V)	2½"	-	10"
Hersey Products	DDC11	3"	-	10"
	No. 2	3"	-	10"
	FDC	¾"	-	2"
	HDC	¾"	-	2"
Watts Regulator Co.	700	3"	-	4"
	709	3"	-	10"
	709DCDA	3"	-	10"
	770DCA	4"	-	10"
	770DCDA	4"	-	10"
	007	½"	-	3"
	007DCDA	2"	-	3"
Zurn Industries, Inc. (Wilkins)	550	3"	-	6"
	MX-550	6"	-	10"
	MX-DCDA	6"	-	10"
	350	2½"	-	6"
	350DA	4"	-	6"
	450	4"	-	6"
	450DA	4"	-	6"
	950	2½"	-	10"
	950 LF	¾"	-	4"
	950 DA	2½"	-	10"
	950 XL	¾"	-	2"

**U. Reduced-Pressure Principle Zone Devices (U.L. classified or F.M. approved, AWWA compliant and ASSE listed 1013)**

<u>Manufacturer</u>	<u>Model #'s</u>	<u>Size</u>
Ames	4000 RP	4" - 10"
	4000 SS	3" - 10"
Cla-val Co.	RP-2	¾" - 1½"
Conbraco Industries, Inc.	40-200	3"
	40-20A	4"
	40-20C	6"
	4020E02	8"
	4020G02	10"
	40200	2½" - 10"

Febco	6C-M	3"	-	10"
	FRPII	$\frac{3}{4}$ "	-	1 $\frac{1}{2}$ "
	825 D & YD	3"	-	10"
	860	2 $\frac{1}{2}$ "	-	8"
	880 (V)	2 $\frac{1}{2}$ "	-	10"
Hershey Products, Inc.	6	4"	-	10"
	6C	4"	-	10"
Watts Regulator Co.	900	3"	-	6"
	909	3"	-	10"
	009RP			3"
Zurn Industries, Inc. (Wilkins)	375	2 $\frac{1}{2}$ "	-	6"
	375DA	4"	-	6"
	475	4"	-	6"
	475V	4"	-	6"
	975	2 $\frac{1}{2}$ "	-	10"
	975DA	2 $\frac{1}{2}$ "	-	10"

#### **V. Casing Spacers**

1. Cascade
2. Advance                      Model SSI
3. PSI                            Model No. C8G-2              Model No. C12G-2
4. Power Seal                  Model No. 4810
5. BWM                          Model BWM-SS

#### **W. Lubricants**

1. Blue Lube
2. Slikstyx (new product formulation only)

#### **X. Water Sampling Stations**

1. GIL # EH101

#### **Y. Valve Key Extensions**

1. Chesterfield Model (See Detail in Part II of this manual)

BF	4.	Tindall Concrete Products, Inc. 3076 N. Blackstock Rd., P.O. Box 1778 Spartanburg, SC 29304	(800) 849-4521 (864) 576-3230 FAX (864) 587-8828
WM (3" & 4")	5.	Smith-Midland Corporation P.O. Box 300 Midland, VA 22728	(540) 439-3266 FAX (540) 439-1232
BF	6.	The Clear Flow Company P.O. Box 1467, 1321 N. Delphine Ave Waynesboro, VA 22980	(540) 949-8386 FAX (540) 885-3280
BF	7.	Rotondo Precast A Division of Old Castle Precast 5515 Massaponax Church Road Fredericksburg, VA 22407	(540) 898-6300 FAX (540) 898-2389
WM (3" & 4") BF	8.	M&B Concrete Products Inc. P.O. Box 2250 Chester, VA 23832	(804) 748-5557 FAX (804) 748-5557

#### **METER BOXES (for 5/8" and 1" water meters)**

##### **MANUFACTURERS:**

##### **POLYETHYLENE**

1.	Mid-States Plastics, Inc. 280 Midland Trail Mt. Sterling, KY 40353	(800) 444-7615 (606) 498-7615 FAX (606) 498-7919
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##### **CAST IRON**

1.	Capitol Foundry of Virginia, Inc. 2856 Crusader Circle Virginia Beach, VA 23456	(804) 427-9431 <u>Mailing Address:</u> P.O. Box 2212 Va. Beach, VA 23452
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#### **SERVICE SADDLES**

##### **MANUFACTURERS:**

1.	ROMAC Industries, Inc. 1064 4th Avenue S. Seattle, WA 98134	(800) 426-9341
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2. Advance Products & Systems, Inc. (318) 233-6116  
P.O. Box 53096 FAX (318) 232-3860  
Lafayette, LA 70505-3096
3. PSI Pipeline Seal and Insulator, Inc. (713) 747-6948  
6525 Goforth Street FAX (713) 747-6029  
Houston, TX 77021
4. Power Seal Pipeline Products Corp. (817) 767-5566  
P.O. Box 2014 (800) 800-0932  
Wichita Falls, TX 76307 FAX (817) 732-8378
5. BWM Company (866) 577-2237  
P.O. Box 414 FAX (838) 245-5494  
Forest City, NC 28043

## **LUBRICANTS**

### **MANUFACTURERS:**

1. J. C. Whitlam Manufacturing Company (800) 321-8358  
200 West Walnut Street (330) 334-2524  
P.O. Box 380 FAX (800) 537-0588  
Wadsworth, Ohio 44282-0380 FAX (330) 334-3005
2. Future Tools, Inc. (740) 927-7712  
13591 Cable Road FAX (740) 927-9929  
Pataskala, Ohio 43062

## **WATER SAMPLING STATIONS**

### **MANUFACTURERS:**

1. GIL Industries, Inc. (904) 434-3912  
P.O. Box 3501  
Pensacola, FL 32505

## **VALVE KEY EXTENSIONS**

### **MANUFACTURERS:**

1. West End Machine and Welding, Inc. (804) 266-9631  
6804 School Avenue FAX (804) 264-0747  
P.O. Box 9444  
Richmond, VA 23228  
Attn: Dan Heath

**C. MANUFACTURERS' REPRESENTATIVES AND/OR SUPPLIERS (Continued)**

- |     |   |   |
|-----|---|---|
| 10. | Flomec, Inc.<br>10821 Trade Road<br>P.O. Box 35610<br>Richmond, VA 23235-0610 | (804) 794-6300<br>FAX (804) 794-3564      |
| 11. | Hanson Pipe and Products, Inc.<br>2900 Terminal Avenue<br>Richmond, VA 23234  | (804) 233-5471                            |
| 12. | Hockett and Associates, Inc.<br>1717 Summit Avenue<br>Richmond, VA 23230      | (804) 353-1423                            |
| 13. | Lewis Supply Co., Inc.<br>101 E. 7th. Street<br>Richmond, VA 23234            | (804) 232-7801                            |
| 14. | MAS Sales, Inc.<br>P.O. Box 1308<br>Kernersville, N.C. 27285-1308             | (919) 996-7770                            |
| 15. | Paramount Agency<br>397 W. Farmington Road<br>Virginia Beach, VA 23454        | (757) 498-9029<br>FAX (757) 431-9132      |
| 16. | Preferred Sources, Inc.<br>9303 Burge Avenue<br>Richmond, VA 23237            | (804) 271-4067<br>FAX (804) 271-1028      |
| 17. | Reams & Associates<br>3704 Old Forest Road, Suite E<br>Lynchburg, VA 24501    | 385-7207<br>Alt# 385-7842<br>FAX 385-7983 |
| 18. | Soter-Martin & Assoc., Inc.<br>P.O. Box 15233<br>Richmond, VA 23227           | (804) 798-1423                            |
| 19. | RFS & Associates, Inc.<br>5401 Flycatchers Court<br>Warrenton, VA 20187       | (540) 428-4440<br>FAX (540) 428-4442      |

- 6) Seating shall use compression closure. The gate shall be of a true bi-directional, mirror image design.
- 7) Valves shall have a smooth bottom design.
- 8) Valves shall have a port in the bottom of the gate to allow purging of the gate.
- 9) All valves shall open left and have end connections of Mechanical Joint, or as specified by the Department of Public Utilities.
- 10) All castings shall be clean and sound without defects. The castings shall be clean and perfect without blow or sand holes or defects of any kind. No plugging, welding or repairing of cosmetic defects will be allowed.
- 11) Valves 3" through 12" must have a minimum 200 psi working and 400 psi test pressure.
- 12) If the standard valve provided by a Manufacturer does not fully comply with these specifications, but compliance can be attained by providing optional features, then each valve must be permanently marked to indicate the option or options that have been provided. The method of marking valves to indicate that options are included must be approved by the Product and Design Review Committee.

b. Resilient Seated Wedge Tapping Valves:

- 1) Tapping valves shall meet above specifications as referenced in 2.a. above. The outlet end shall be suitable for use with the type of pipe specified, either M.J. or Hub end.
- 2) Tapping valves will be suitable for use with all approved manufactured tapping sleeves without modification.



- b. **General:** Meter setters for domestic use at businesses, Doctor or Dentist offices, restaurants, etc., shall be equipped with a bypass line and valve for meter maintenance. Setters for residential or irrigation uses etc., shall NOT be equipped with a bypass line.

Meter setters for 1" meters shall be 1" x 12" riser meter yokes with copper tube flare nut or compression on the inlet and outlet sides.

All 1 1/2" and 2" meter setters shall be constructed of seamless threaded red brass pipe, standard Type K hard copper tube (per ASTM B-88-62,) high quality brass (per AWWA C-800,) and leadless solder, and provide horizontal female pipe threads on both front and rear connections.

- c. **Bypass:** Meter setters that are equipped with a bypass line and valve shall be appropriately sized with an inverted key or ball type stop threaded directly into the inlet bypass tee fitting. This bypass valve shall have a solid tee head and be either lock wing type or provide a bracket or other device to lock this valve in the "off" position upon installation. If copper tube is used for the bypass line, the compression connection for the copper side of the bypass valve must be as produced by the following manufacturers:

Mueller Co., "110" compression connection for copper pipe; or

Ford Meter Box Co., "Pack Joint" connection for copper pipe; or

A. Y. McDonald, "T" compression connection for copper pipe.

Otherwise, a tee head inverted plug or ball type bypass valve is required with a threaded connection. Both of the bypass tee fittings, (inlet and outlet,) shall have brace pipe eyelets cast within them to stabilize setter upon installation, if necessary.